FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

Volume 30—Number 50 DECEMBER 13, 1958 1 Year $5, 2 Years $8

Ralston Purina Reports Record Sales, Earnings

ST. LOUIS — Sales, net earnings and earnings per share reached new highs for the Ralston Purina Co., St. Louis, in the fiscal year ended Sept. 30, 1958.

The annual report of the company shows that sales in its 65th year totaled $493,527,453, a gain of 13% over the previous high of $438,261,998 recorded last year.

Earnings for the year totaled $17,468,759, nearly $3 million more than the $14,569,756 of the previous year. Earnings per share amounted to $2.71, compared with $2.28 the previous year. Dividends paid on common stock amounted to $1 a share, compared with 90¢ the previous year.

In a letter accompanying the report, Donald Danforth, chairman of the board, said, "Our working capital increased substantially, and shareholders' equity reached a new all-time high. Our investment in plants and equipment (net after depreciation) is the greatest in our history. More has been paid to employees in wages and salaries than ever before."

Mr. Danforth noted that the growth occurred in all major divisions of the company.

"Volume of sales of Purina Chows has increased substantially. Today

(Turn to PURINA, page 8)

A. E. Staley Profits Top 1957 Mark; Feed Department Gains

DECATUR, ILL.—The A. E. Staley Manufacturing Co. of Decatur reported a net profit of $5,748,666 for the fiscal year ended Sept. 30, compared with $5,175,249 for the previous year.

Net sales for the fiscal year reached a new high of $156,939,617 in comparison with net sales of $152,317,086 for the preceding year.

Earnings per share of common stock for the year were $2.98 compared with $2.73 in the prior year.

The company's board of directors on Nov. 11 voted a regular quarterly dividend of 25¢, an extra dividend of 35¢, and a 2% stock dividend on common shares. Similar payments were made in November a year ago.

In an annual letter to stockholders and employees, A. E. Staley, Jr., chairman of the board, and E. K. Scheiter, president, reported that the company had maintained corn refining volume, despite the general economic downturn during the year, while improved soybean processing margins had contributed to the best overall results shown by the company since 1948.

Although demand for products of the company's corn division receded in some industries, they noted, this was offset by new developments and new markets in others.

The company's formula feed de-

(Turn to A. E. STALEY, page 8)

Midwest Conference Explores Area Where Feed Industry And Veterinarians Meet

By MARTIN E. NEWELL
Feedstuffs Staff

KANSAS CITY—The area where the veterinarian and the feed man meet was thoroughly explored at the first Midwest Veterinary-Nutrition Conference at the President Hotel in Kansas City, Dec. 8-9. The two days of sessions were devoted to detailed discussions of the latest developments in the feeding of poultry, swine ruminants and small animals, including the disease and nutritional problems that arise.

More than 275 persons attended the conference, including 160 veterinarians from several midwestern states, an attendance which was a reflection of the keen interest in this discussion of topics where differences of viewpoint sometimes lead to misunderstandings in the field.

The gathering was sponsored jointly by the state veterinary medical associations of Iowa, Kansas, Missouri and Nebraska, and the Midwest Feed Manufacturers Assn.

The groundwork for the gathering was laid over the past two years by a number of discussions between leading veterinarians and feed men. Prominent in these talks was Dr. Morris Erdheim, Dawe's Laboratories, Inc., Chicago, and a veterinarian. His efforts were recognized at the meeting with a presentation of a certificate commending him for his work. The presentation was made during the conference at a dinner meeting at which Dr. Russell E. Rebrassier, president of the American Veterinary Medical Assn., was the speaker on the relation of the veterinarian to industry.

Local Meetings Planned

As a result of the conference, a series of local meetings probably will be scheduled in the Midwest to bring together the local veterinarian and feed man. These gatherings will be sponsored by the state veterinary societies in cooperation with various state feed associations and the Midwest Feed Manufacturers Assn. Lo-

(Turn to CONFERENCE, page 99)

Millfeed Prices Climb; Levels Termed Highest Since Post-War Years

Generally excellent feed demand has moved millfeed prices to their highest levels since the years immediately following World War II, it was reported this week.

Bulk prices Dec. 12 were at these peaks around the country: Kansas City—Bran, $41.50@42; midds. $44@44.50; shorts, $44@44.50. Chicago—Bran, $48; midds. $48.50@49.50. Buffalo—Bran $49.50; midds., $50. Minneapolis—Bran $44.50@45; midds., $46.50@47.50.

Minneapolis prices are apparently under the strongest pressure and are reported to be $19 to $20 more than a year ago at the same time.

The answer to the boom is simply good feed demand, processors said. Markets are traditionally low at this time of the year, and mixers are operating at a low inventory this fall. But a large number of animals on feed brought unexpected demand at this time of the year. The mixers

(Turn to MILLFEED, page 8)

S. E. Association Urges Single Egg Group for Promotion Only

ATLANTA, GA.—The board of directors of the Southeastern Poultry & Egg Assn. has urged upon the southeastern egg industry the support of a single national egg organization for promotional purposes only. Action on the resolution came near the end of a two-day meeting of the board here at the Dinkler Plaza Hotel, Dec. 5.

In another resolution, the directors of the 10-state association reaffirmed their opposition to a proposed enabling act for a national turkey marketing order, declaring they had not changed their opinion about the danger of opening the door to government manipulation of any part of the poultry industry.

The appeal to the egg industry called for a national egg organization governed by a board comprised of members selected by the membership on an area basis and numerically constituted according to the volume of production from the various areas. The resolution urged that the national egg organization confine its activities to promotional work and leave legislative matters to the regional and state associations.

In a lengthy discussion of future association activities in the field of

(Turn to SOUTHEAST, page 99)

Tennessee Group Hears Talk On Feed Buying Practices

By THOMAS E. LETCH
Feedstuffs Staff

NASHVILLE, TENN.—Discussions of important topics in the feed industry were mixed with liberal socializing at the convention of the Tennessee Feed Manufacturers Assn. Nov. 30-Dec. 1 in the Noel Hotel at Nashville. The program attracted about 175 registrants, the largest group on record in the association's nine years of existence.

Speakers on the program were from universities, government and industry associations.

One of the highlights of the meeting was information on the farmers' feed purchasing activities presented by Dr. R. L. Kohls, department of agricultural economics, Purdue University. Purdue conducted a series of studies to shed light on the farmer as a buyer of various supplies. In the feed study, detailed interviews were taken from 48 farmers located in three communities in a good commercial farming area of central Indiana. Data were established on four weeks (May-June, 1958) purchasing activity. About 75% of the feed involved was supplement; 25% was complete rations. Of the complete feed, about 75% was hog feed, 13% cattle feed, 11% poultry feed and 1% dairy feeds.

Some 32 firms were supplying feed within 8 miles of the three individual communities (26 elevators, three feed stores and three farmer-dealers). These firms represented 15 brands of feed (12 national or major brands, three local brands). Nearly 80% of the suppliers were single brand handlers. Grinding and mixing services were offered by 84% of the outlets. Practically all offered 30-day or long-

(Turn to TENNESSEE, page 95)

FEEDSTUFFS *Features This Week*

RESEARCH REPORTS: Swine nutrition research reports at the American Society of Animal Production meeting are summarized on **page 10**.

INTEGRATION: What does vertical integration do to competition for feed sales? See an economist's answers on **page 18**.

AMINO ACIDS: The second in a series of articles on amino acids will be found on **page 28**.

ENERGY STANDARDS: A nutritionist poses some questions for feed manufacturers on the current ways energy feeding standards are used. **Page 36**.

BUILDING SALES: A Wyoming feed mill operator says "staying ahead" is the way to build sales. See **page 62**.

ADDING FAT: Methods of handling and adding fat to feeds are outlined on **page 66**.

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The Right Direction

A HUGE STRIDE WAS TAKEN this week along the path of improved understanding and cooperation between veterinarians and feed men. Helping to keep this effort moving in the right direction was a distinguished group of practicing veterinarians, educators and feed industry representatives who met in Kansas City for the Midwest Veterinary-Nutrition Conference.

A great deal of "trail blazing" preceded this gathering, including cooperative work done on a national level between the American Veterinary Medical Assn. and the Nutrition Council of the American Feed Manufacturers Assn., the still-young American Association of Veterinary Nutritionists and the state feed associations which have sponsored joint veterinary-feed conferences. These activities, of course, have involved special efforts on the part of individuals, all of whom deserve much credit for recognizing a problem and moving to do something about it.

The conference this week was sponsored by the Midwest Feed Manufacturers Assn. and the state veterinary medical associations of Iowa, Kansas, Missouri and Nebraska. It properly may be considered a major contribution to better relations among those concerned for several reasons. First of all, the conference got down to brass tacks in discussing problems. Second, it attracted participation by top talent in the profession and in industry. Third, the thinking generated by a conference of this stature is bound to attract wide interest in places where such interest counts.

Fourth, this thinking promises to be projected through a large agricultural area on a local "town meeting" basis. Plans are under way for a series of smaller sessions between veterinarians and feed men, with a "capsule report" of the Kansas City meeting expected to provide the basis for discussions.

This latter development could well produce results more quickly than many other types of effort. Understanding, mutual respect and cooperation must, in the final analysis, be accomplished at the community level.

MANY WORDS HAVE BEEN WRITTEN about the problems facing feed men and veterinarians as they attempt to serve, through their individual knowledge and skills, the same livestock or poultry producer. However, the definition of responsibilities provided at the conference by Dr. Russell E. Rebrassier, president of the AVMA and assistant dean of the Ohio State University College of Veterinary Medicine, brings the basis of better understanding into sharp focus and is worth emphasizing.

Said Dr. Rebrassier: "Good, nutritious feed is essential to high production and satisfactory performance in animals. But even the best of feed cannot eliminate all diseases. Furthermore, the nutritional requirements of a sick animal differ from the requirements of healthy stock.

"Veterinary medical practice requires the veterinarian to diagnose and treat disease. He has an obligation to use his clinical know-how and available laboratory facilities to get an accurate diagnosis and to institute appropriate treatment to restore health in sick animals, and prevent the spread of disease to the rest of the herd or flock.

"The feed man's job, as I understand it, is to provide the livestock owner with a feed product and feeding program designed to yield the greatest economical gain. The feeding program should provide for the maximum production of milk, eggs and meat and new animals at the least possible cost. At the same time, the animal should be maintained in the best of health.

"Each group has a definite role in fighting livestock diseases. The veterinarian develops and participates in programs designed to control diseases, and the feed man assists in the maintenance of health through sound nutrition. While these roles are distinct, the concern of both groups for animal health has led to encroachment and overlapping. This is an area where conflict between the feed industry and the profession can arise.

"The feed man who attempts to diagnose disease in herds—frequently without seeing the infected animals—or prescribes a feed as treatment is practicing veterinary medicine without training or license. On the other side of the picture, the veterinarian who blames a herd's condition on the feed without thorough investigation is not giving his best in veterinary service to the livestock owner."

DR. REBRASSIER went on to point out that the feed industry needs to know more of the nutritional requirements of animals in poor health and with specific infections. Also, the veterinarian needs to know more of the feed industry's science so that he can apply this knowledge and formulations in his service.

Conflicts, when they occur have generally taken place at the community level, he pointed out. And it is at the community level where the real work must be done. Each feed man must be willing to accept his responsibilities if further big strides are to be made in improving relationships with veterinarians.

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Weather and prices were the big factors in formula feed demand over the nation this week. Sharply colder weather in the northern half of the country moved up demand substantially and the large number of animals on feed in the North and other areas were still demanding a good enough price to keep good feeding programs in operation. The southeast part of the country appeared to be the only area where demand was not booming. Southeast broiler producers were still chafing under low prices. Good, open weather was also reported there. Rising ingredient prices will bring increases in feed prices next week, but manufacturers expect volume to continue strong. The wholesale feedstuffs price index for the week was 89.3, compared with 85.9 last week and 72.3 a year ago, according to U.S. Department of Agriculture reports. The feed-grain index edged up to 65.1, as against 64.6 a week earlier and 64.7 a year earlier. (Ingredient prices in detail on pages 96-98.)

Northwest

"Terrific" was the term most often heard this week from feed mill representatives describing their business.

"There seem to be more people feeding and feeding well in this area than ever before," one representative said. "Demand is very, very heavy and we're being pushed continuously by our dealers."

This dealer push, he said, is an indication that dealers are moving out feed as fast as they are getting it and that the demand is generally from the feeder and not for some inventory building. There was some indication that cattle feeders were doing some buying for tax purposes, but this was not felt to be a major push to sales.

Unseasonably cold weather in the area and the larger population of animals on feed were considered to be the big reasons for the strong demand. One representative said the entire picture is good for feed business because of the extremely large number of smaller feeders who are becoming acquainted with the values of good feeding practices.

Prices are a major conversation topic, but price apparently has not made much difference to feeders. Prices this week will be up again, around $1 to $1.50 on complete feeds and $3 on supplements.

Representatives said their mills are "really spinning," with some reports of 10-hour shifts plus Saturdays. One mill has a December volume to date which, if continued, will give it the second largest month in its history.

Dairy and cattle feed demand is very strong, hog feed demand is reported steady to slightly improved and layer feeds are steady.

Southwest

Formula feed sales volume continues to be excellent in the Southwest. Interest in most types of feed is good and there is a general feeling that business will hold up well through the year-end unless prices get so high as to discourage some feeding.

Prices were rising fast this week to furnish the main topic for discussion. Lists from manufacturers will probably carry advances of from $1 to $3 per ton, depending on the type of feed. Practically all ingredients were on the strong side, with millfeed and vegetable and animal protein setting the pace. So far, no reaction to the increasing prices has been evident, but some mills were concerned about the future.

Overall, there is considerable optimism. Animal numbers are good, feeding ratios good, and farmers in an optimistic frame of mind, all factors that contribute to the bright outlook. Several mills report that business is running as much as 20% ahead of a year ago for this period.

Cattle feeds are moving in substantial volume. Hog feeds continue to be a leading item and egg feeds have shown signs of picking up. Broiler prices are low, but feed volume continues to be pretty good. Dairy rations are in better demand.

The winter-like weather has tended to stimulate buying. Slow growth of wheat pastures also has contributed to the healthy pace.

Running time is mostly five days, with some mills on six days. Extra shifts or overtime are being used to keep pace with the demand and still there will be good backlogs into next week.

Northeast

Heavy snowstorms and sharply colder weather boosted demand for dairy feeds. Successive blizzards buried sections of this region in snow ranging in accumulative totals up to two or more feet. Farmers in one predominantly dairy area had difficulty in getting their feed in and their milk out.

Dairy concentrates sold in greater volume than complete feeds, with dairy feeds and egg mashes accounting for the bulk of the sales turnover. Broiler feeds dragged and some turkey feeds, for breeding flocks and the Christmas trade, showed up in the over-all tonnage.

Among the end products, milk held steady. Although eggs were unchanged the market had a weaker undertone. Broilers hovered around the 13@14¢ lb. level.

Ingredients were almost universally strong. Some advanced and others

(Turn to MARKETS, page 100)

The Selling Advantage To Help You Make a $100.00 Sale at Every Silo

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FORAGE FLAVOR PRESERVATIVE

Count the silos in your area and discover the profit potential in this $62,000,000 market.

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CAPITAL COMMENT

BY JOHN CIPPERLY

Flaxseed Sales

WASHINGTON — USDA has announced it will sell 1958 flaxseed for domestic crush or export of flaxseed produced in California or Arizona during February, 1959, at the higher of the market price or the 1958 support level, but not less than the 1958 support price plus carrying charges of 1.5¢ bu.

USDA says that the March, 1959, sales price for flaxseed will not be less than the 1958 loan rate plus carrying charges of 3¢ bu. This policy will be effective until March 31, 1959.

Disposition of other area flaxseed coming into CCC loan default position will be announced at a later date, USDA says.

As explained by USDA officials, under the short-term sales policy of USDA for California-Arizona flaxseed, the February, 1959, price for No. 1 flaxseed containing 10.6-11% moisture at Los Angeles, would be $3.65 bu., and for the same quality commodity at San Francisco, $3.305 bu. Premiums and discounts would prevail as stated in the USDA flaxseed price support bulletin. There will be a discount for No. 2 flaxseed of 6¢ bu. Premiums will be 1-4¢ bu. for flaxseed with moisture below 10.6%.

As of Oct. 30, 1958, there was under price support in the area involved only approximately 600,000 bu., all of which was located in California.

Poultry Procurement

WASHINGTON — Under Public Law 480 the U.S. Department of Agriculture has authorized procurement of approximately 7 million pounds of whole, frozen and ready-to-cook turkeys and broilers.

Involved in this procurement is about $2.25 million, which would represent dollar value to the U.S. exporter. He would sell to the foreign importer whose payment would be repaid in terms of Turkish currency for the account of Commodity Credit Corp.

Sales terms involve conclusion of contracts between Dec. 18 and May 30, 1959, with delivery on the basis of shipments from U.S. ports between Dec. 18 and June 30, 1959. Purchases will be made by the Turkish Economic Mission at 2523 Massachusetts Ave. N.W., Washington, D.C. Deliveries will be to the importer f.o.b. or f.a.s. U.S. ports.

Supply Control Discussed at Swine Meeting

AMES, IOWA — Swine producers can gain bargaining power on the market, if they want it, through supply control, according to a speaker at the Midwest Swine Marketing Conference held here recently.

Dr. W. W. Cochrane, president of the American Farm Economics Assn., and a University of Minnesota agricultural economist, reviewed some of the possibilities and limitations of cooperative associations in marketing and said:

"Remember, as long as you live—you cannot bargain over price unless you control supply. You cannot turn $12 hogs into $15 hogs by cooperative action. It is not in the cards, so stop dreaming about it."

"If you want to raise the level of hog prices through bargaining power, you have to find a way to control the total supply of pork," he continued. "To do this, you are going to have to be both very wise and very tough—wise enough to work out the mechanics of control and get the nation to adopt it in legislation, and tough enough to accept and operate under supply control; that is, close your shop—limit production and restrict entry."

The speaker pointed out he was not recommending this policy route, but that he believed farmers eventually will come to it.

Supply control could be effected, said Dr. Cochrane, by having a good and fair price established in Congress; establishment of a national sales quota by the U.S. Department of Agriculture; distribution of the quota to farmers in terms of total weight of live hogs which could be marketed during a given year; and, finally, a provision making the quota certificates negotiable, so that they could be bought, sold or rented.

For consumers, said the economist, it would mean somewhat higher food prices, but there would be no monopoly price because of the price-making forces in the political market. And the consumer's costs of price and income support to farmers through the federal treasury would be reduced importantly.

Quaker Oats Promotes Angus Macdonald

CHICAGO — Angus Macdonald has been named director of purchasing by The Quaker Oats Co., Chicago, effective Jan. 1, 1959. He has been manager of the company's Akron, Ohio, plant since 1953.

Mr. Macdonald joined the company in 1923 after his graduation from Yale University. He moved into plant management through various production posts, and was assistant manager of the company's plant in St. Joseph, Mo., before going to Akron in 1950 as assistant manager. He was promoted to manager of the Akron plant in 1953.

In his new post, Mr. Macdonald will report to M. J. Aubineau, purchasing vice president. L. E. Thorp will continue as manager of the purchasing department.

Chemo Puro Expands Sales Organization

NEWARK, N. J.—Two additional sales representatives and four additional sales agents have been announced by Chemo Puro Manufacturing Corp., Newark.

The sales representatives are George S. Rairigh, Georgetown, Del., who will cover Delaware, Maryland and Virginia, and Kalman Kiske, Endicott, N.Y., who will cover New York and Pennsylvania.

Brokers who will handle Chemo Puro's micronutrients and piperazine wormers in the Midwest are: Iowa Soda Products Co., Council Bluffs; Earl Branson, Kansas City; Russ Jones, Cedar Rapids, Iowa, and Warner Brokerage Co., Minneapolis.

Move to Control Ogilvie Mills Fails

MONTREAL — An attempt to wrest control of Ogilvie Flour Mills Co., Ltd., from the hands of present management has failed. Share voting strength commanded by the administration showed a favorable margin of five to two. The take-over bid began last October when the National Trust Co. of Toronto announced an offer to buy 300,000 shares at $44.75 a share, a level $8 higher than the price then prevailing on the market.

The name of the buyer was not disclosed and his identity still remains a mystery. However, it was revealed that the interests concerned were associated with Gairdner & Co., a Toronto investment firm, and with Trafalgar Investments, Ltd.

Gordon R. Ball, recently-appointed chairman of the Ogilvie board, told the annual meeting that 82% of the company's 3,584 shareholders sent proxies in favor of management. This covered 69%, equal to 515,830 of the company's total of 747,689 common shares.

N.H. Official Cites "Special Mix" Problem

MANCHESTER, N. H.—Some decisions must be made this winter regarding custom and special mixes of poultry feeds, Perley I. Fitts, New Hampshire agriculture commissioner, warned in an address at the annual winter meeting of the New Hampshire Poultry Growers Assn. here, recently.

He said these decisions would have to be aimed at overcoming what he described as "certain violations" of the state's feed regulations, which he believes should be tightened.

Commissioner Fitts also told the poultrymen that something will have to be done about the poultry diagnostic laboratory at the University of New Hampshire in Durham, where substantial funds have been used from the pullorum testing program, but are no longer available because this testing has fallen off.

He asked the poultrymen whether the problem should be solved by imposing high fees on the remaining flock testing, a scale of fees for other diagnostic work or a request to the 1959 legislature for state aid in providing for such laboratory service.

The commissioner pointed out that the poultry growers' association has already gone on record with a request for a $25,000 legislative grant to help New Hampshire's $34 million poultry industry.

A panel discussion on feeding delved into such questions as whether the poultryman should full feed, control feed, feed high energy rations or those with high fiber. The question as to how feed costs per dozen eggs can be cut was also discussed.

Taking part in the discussions were Richard Warren, extension poultryman at the University of New Hampshire, moderator; Richard Goodell of Nichols, Inc., Exeter; Harvey Taylor of Arbor Acres Farm, Glastonbury, Conn.; Fred Garland of the Purina Research Farm, Nashua; John Snyder of the Beacon Milling Co., Cayuga, N.Y., and Cleveland Webster of Exeter. Dr. James Wiley of Whitmoyer Laboratories, Inc., Myerstown, Pa., spoke on worm control, and Bryon Fish of the Springfield (Mass.) Cooperative Auction Assn. gave a talk on ventilation.

J. D. Sykes to Address Illinois Conference

URBANA, ILL.—J. D. Sykes, vice president of Ralston Purina Co., St. Louis, will be among the speakers at the Agricultural Industries Forum Jan. 27-28 at the University of Illinois. Mr. Sykes will speak Jan. 28 on the subject "Marketing Manpower."

Various aspects of agricultural industry operations will be discussed at the two-day event.

New Phosphate Deposit Reported Found in Mexico

HERMANAS, MEXICO — A new commercial deposit of phosphate rock has been discovered near this northern Mexico village, according to Newell Finch of the Magnolia Petroleum Co. and Dr. G. J. Malherbe, economic geologist, both of Rosenberg, Texas.

They report plans to import a sizeable tonnage into Texas where it will be ground, bagged and sold to the feed trade. Option holders are anticipating delivery of 6,000 tons a month for the market area. Mr. Finch said price for the material, ground and bagged, will be in the neighborhood of $48 ton, f.o.b. plant site, which will possibly be Eagle Pass, Texas. This is 123 miles north of the mine, which is called the Garza Deposit.

Mr. Finch reported that although composition of the phosphate has not been accurately identified as yet, it is believed to be the beta form of tricalcium phosphate and hydroxylapatite, or fluorapatite. The ore is being mined, shipped and sold "as is" for the manufacture of commercial products such as animal and poultry feeds.

"The phosphate content is unusually high," Mr. Finch said, "analyzing 30% or better; calcium is also high, and fluorine is low, around 0.41%. The major impurities include aluminum phosphates, and silica as quartz sand about 8 to 9%."

Mining engineers have surveyed the deposit, he said, and have estimated proven ore, indicated ore and probable ore to run between 1 and 2 million metric tons. Another nearby outcropping could increase the total to two or three million tons.

Fifty-three carloads have been shipped from the mine as of early December, said Mr. Finch, with an average phosphate content of 31.09%. Production may be raised to 6,000 tons a month, in which case the life of the deposit would have an expectancy of 13.8 years.

Kansas State Plans Turkey Discussion Day

MANHATTAN, KANSAS—Kansas turkey hatcherymen are being invited to Kansas State College here Dec. 19 for a discussion on mutual problems.

The turkey meeting is the direct result of a similar meeting for Kansas hatcherymen held on campus Dec. 6. More than 25 hatcherymen met informally with K-State staff members to discuss such questions as whether hatcherymen ought to handle feed, and technical problems in use of antibiotics in feeding.

T. B. Avery, head of K-State's poultry husbandry department, says the meetings of hatcherymen will be annual affairs.

The Dec. 19 sessions for turkey hatcherymen will begin at 10 a.m. in Room 135 of Waters Hall.

Dr. John N. Van Zandt Vilas Sales Head

STORM LAKE, IOWA — Dr. John N. Van Zandt has been appointed director of sales, feed division, for Vilas and Co., Storm Lake.

Dr. Van Zandt was formerly with the Staley Milling Co. in Kansas City.

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MILL & ELEV. CO.
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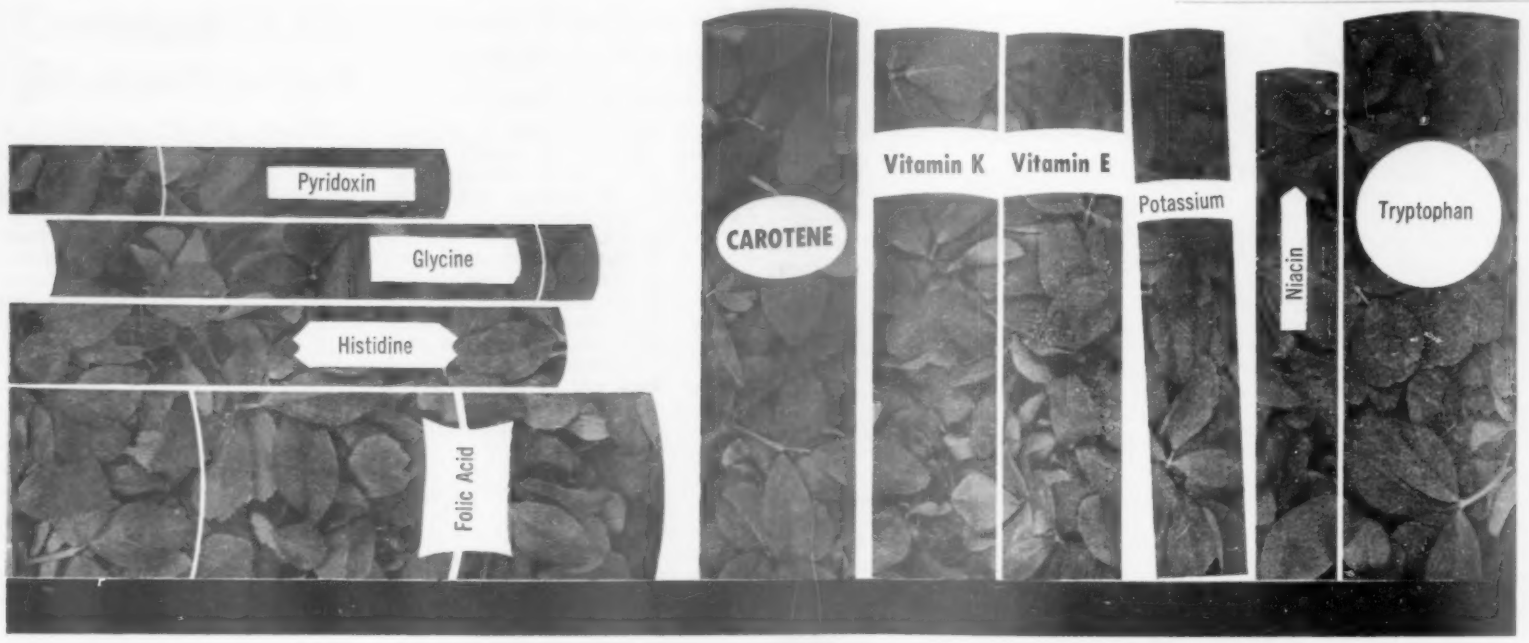

Volumes could be written about

FOR FEEDS WITH A FUTURE

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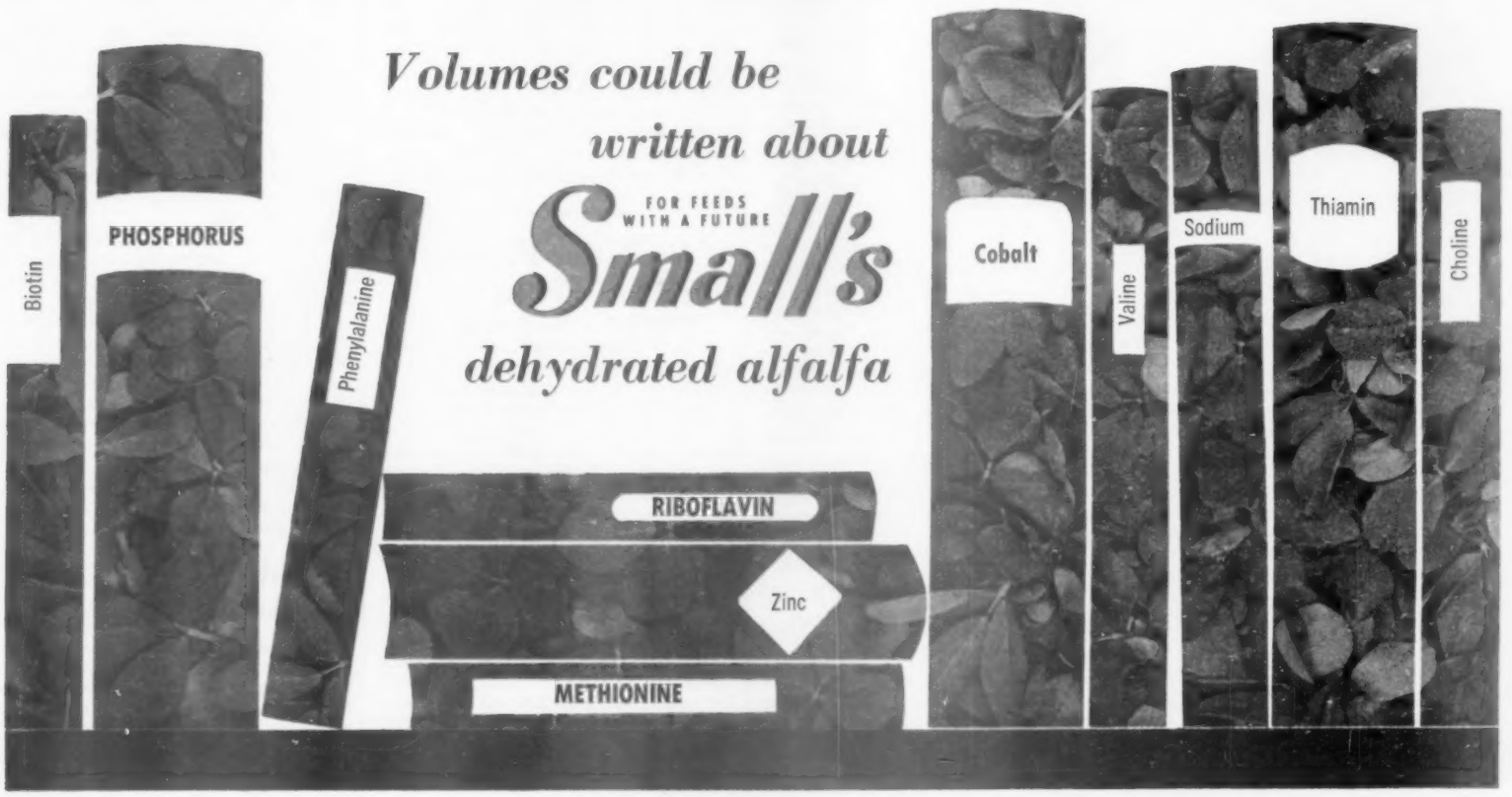

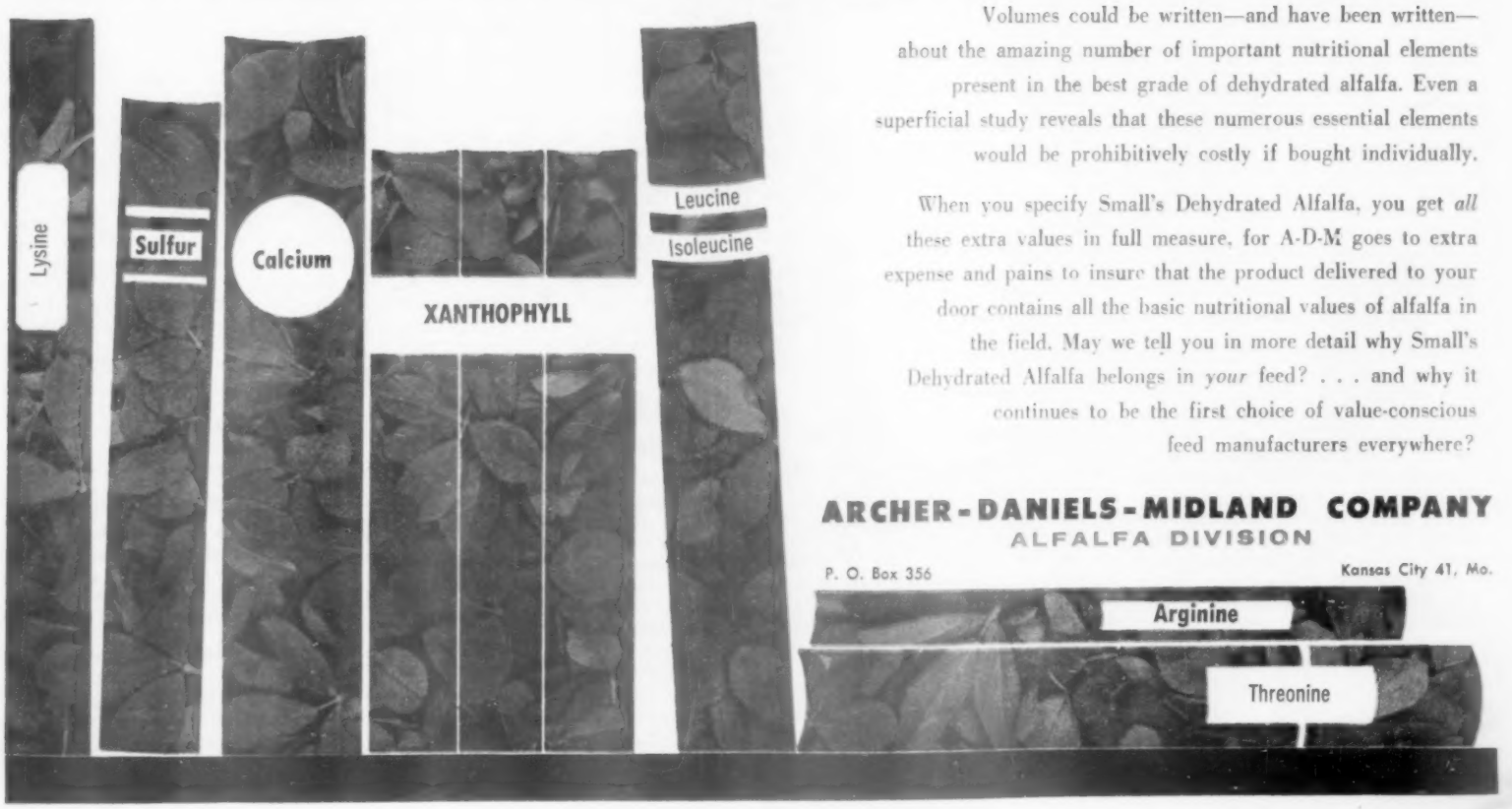

Volumes could be written—and have been written—about the amazing number of important nutritional elements present in the best grade of dehydrated alfalfa. Even a superficial study reveals that these numerous essential elements would be prohibitively costly if bought individually.

When you specify Small's Dehydrated Alfalfa, you get *all* these extra values in full measure, for A-D-M goes to extra expense and pains to insure that the product delivered to your door contains all the basic nutritional values of alfalfa in the field. May we tell you in more detail why Small's Dehydrated Alfalfa belongs in *your* feed? . . . and why it continues to be the first choice of value-conscious feed manufacturers everywhere?

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Operation of Grain Banks Covered at Iowa Convention

By GEORGE L. GATES
Editor of Feedstuffs

DES MOINES—A lively discussion of "how to operate a grain bank" at the recent Western Grain & Feed Association of Iowa convention indicated the development of some regulatory problems surrounding this type of custom service in the state.

Main emphasis of the panel, however, was on how a grain bank operation can help improve service to customers and expand feed volume. Under this system, feeders deposit grain in feed company elevators to be credited to them when they purchase complete feeds.

The necessity for meeting requirements of the state's warehouse laws was described by Ray Johnson, Warehouse Division, State Commerce Commission. Grain must either be purchased on the tenth day after it enters an elevator, or else a warehouse receipt must be issued.

At the same time, some confusion has developed over the application of the state tonnage inspection fee to feed made from "banked" grain.

I. Levin, state chemist, commented, "You fellows are ingenious and about seven steps ahead of us." He explained that at present his division has ruled that feed from a custom mill is subject to the inspection fee if the customer is billed for corn. If the customer is billed for services, the feed is not subject to the fee.

Grain bank operators have found that meeting the requirements of the two regulatory agencies has complicated their operations.

Mr. Levin also explained that custom millers who include drugs in bulk feed must supply a label providing directions, a list of drugs and other information just as they would be required to do on bagged feed. In most cases the invoice can serve as a label, he said. He also pointed cut that "new drugs" as defined by the Food and Drug Administration may not be added to custom feeds. ("New drugs" include such additives as stilbestrol but not, for example, antibiotics in non-therapeutic quantities.)

Passes Resolution

The association later passed a resolution to seek a new feed tonnage law, declaring the present one to be "outdated, unwieldy and almost unworkable when applied to modern-day custom feed mixing operations and delivery of feed in bulk." (Feedstuffs, Nov. 29, page 1.)

On the positive side, feed men attending the convention learned a great deal about the values of grain bank operation, both in Iowa and in Illinois. Experiences with this system were related by John Bonnett, Bonnett Feed & Grain Co., Bushnell, Ill.; T. Harris Young, Young Feed & Grain Co., Marshalltown, Iowa, and Bud Swanson, Swanson Elevator Co., New Sharon, Iowa.

Grain Bank Operations

Some of the points brought out were these:

To make the system work a feed man must have written policies, a definite feed program, an efficient bookkeeeping system, plenty of storage, modern processing equipment, active promotion, a grain drier, bulk delivery equipment and a sincere desire to be of service.

It is possible to deliver feed to a customer before he has made delivery of grain, but the feed man must "be in control" of corn in farm cribs if his own elevator supplies are used before receipt of grain.

Use of a portable scale enables the feed company to tell a farmer what his conversion was, the price he got for his corn in the form of livestock marketed and his gross profit. Information of this kind is useful in helping to sell new customers.

In the Bonnett operation, 90% of the customers use formulas provided by the company, although farmers may choose to use their own formulas.

Charges must be accurately determined. A problem that the bank operator must solve is whether the system should be self-supporting from charges or whether profits should be made on the sale of supplements.

Deliveries of grain due a "banker" must be watched as closely as accounts receivable and the customer reminded when he should deliver grain.

Operations appear to be limited to a 10 or 15-mile radius of the mill, with delivery fees specified.

Said Mr. Swanson: "Every dealer is going to have to get into grain banking if he's going to remain in business."

BROILER PRICES SHOW LITTLE CHANGE

FAYETTEVILLE, ARK. — Broiler prices at m'd-week were generally about the same as a week earlier, according to reports compiled by the federal-state market news service here. However, the reports, from principal broiler areas, showed no prices as low as 13¢ lb. at the farm, as had been true the previous two weeks. The low generally was 14¢, which also was the prevailing price in some sections. Prices ranged up to 16 or 17¢. Reports as of Dec. 10 included the following prices at the farm: Arkansas, 15-15½¢; Delmarva, 14.10-16¢, mostly 15-16¢; Georgia, 14-15¢, mostly 14¢; Texas, 16-17¢; Shenandoah, 14-16¢, mostly 14-15¢; Mississippi, 14-16¢, mostly 14-15¢; Alabama, mostly 14¢.

Kansas City Yule Party Scheduled for Dec. 20

KANSAS CITY — The annual Christmas Party of the Kansas City Feed Club, to be held Dec. 20 at the Town House Hotel here, will be "bigger and better than ever," according to Barney C. McCoy, Ralston Purina Co., club vice president and entertainment committee chairman.

A record turnout is expected for th's event, the highlight of the club's year. The cocktail hour will start at 6:30 p.m. The banquet, complete with all the trimmings, is slated for 7:30 p.m.

Prior to dancing to the music of Harlan Livingood and his orchestra, a number of door prizes will be awarded. Favors will also be presented to the ladies.

Mr. McCoy urges that reservations be made early since a sellout is a good possibility. A check for $15 mailed to R. G. Coughenour, Rodney Milling Co., 1550 West 29th St., Kansas City 8, Mo., club treasurer, will bring tickets for a couple by return mail.

Cincinnati Feed Club Plans Christmas Party

CINCINNATI, OHIO — Members and guests of the Cincinnati Feed Club will hold an annual Christmas dinner-dance on Dec. 15 at Stein's Hide-A-Way Restaurant. A 6 p.m. cocktail hour will be followed by dinner and dancing, with music provided by a three-piece orchestra.

NEW FEED MILL

KENTON, TENN. — E. R. Cox & Son of Kenton, Tenn., is constructing a new feed mill and farm store, according to E. R. Cox, owner.

Peter Hand Foundation Opens New Premix Facility in Texas

CHICAGO—The Peter Hand Foundation, Chicago, has opened a new Dallas, Texas, plant, announced Wiley Akins, vice president and general manager.

Mr. Akins said the plant will provide both manufacturing and distribution facilities for the firm's activities in Texas, Oklahoma, Arkansas, Louisiana and New Mexico. The company supplies vitamin and antibiotic premixes to the feed industry.

The plant will be located at 130 Howell St., Dallas, and will feature special equipment for handling micronutrients, Mr. Akins said.

Plant manager for the new facility will be Jinkins Moore, a graduate of Texas A.&M. College. Dr. R. A. Rasmussen, associate director of research for the Peter Hand Foundation, will be in charge of product and quality control for the Dallas operation, as well as at the Chicago plant.

In addition to the company's complete line of premixes, the new plant will supply individual vitamins, antibiotics and other feed additives. "This will make it possible," Mr. Akins explained, "for the foundation to provide overnight service to our customers throughout the southwest."

Mr. Akins also said that the new Dallas plant was the first in a series of planned expansions for the Foundation.

L. V. Butler Fined For Mail Fraud

MEMPHIS—Federal Judge Lester L. Cecil fined former multi-millionaire grain man Landon V. (Jimmy) Butler $8,000 on mail fraud charges Dec. 1 in Federal Court here.

Two of Mr. Butler's ex-business associates, Ernest Spencer Morgan, 72, and John J. Wilson, Sr., 43, both of Mobile, Ala., also pleaded guilty to similar charges and received two years of probation each.

Judge Cecil refused to mete out a prison term to Mr. Butler, saying: "I find no useful purpose would be served in giving the defendant additional time in a penal institution."

The charges grew out of a $4,441,000 soybean swindle four years ago for which Mr. Butler received a three to five year prison sentence in 1956 after pleading guilty to obtaining money under false pretenses. He was paroled in October, 1957.

Judge Cecil said he thought Mr. Morgan and Mr. Wilson had exercised no criminal intent in the transaction, but had merely carried out the orders of their employer, Mr. Butler. Mr. Morgan was superintendent of a Mobile, Ala., grain elevator controlled by Mr. Butler and Mr. Wilson was employed as a warehouseman.

The two men were pulled into the affair, the judge said, when Mr. Butler sold 1.8 million bushels of soybeans that did not exist. Mr. Butler sold warehouse receipts which he represented as being backed by soybeans stored in the Mobile warehouse. The two employees were required to sign the receipts.

Taste Engineering, Inc., Appoints Carl Steinle

CHICAGO — Carl O. Steinle has been appointed representative in the East for the products of Taste Engineering, Inc., Chicago.

Mr. Steinle was associated with the Quaker Oats Co. and Vitality Mills in their feed and dog food divisions for 20 years. He established his own brokerage business when Vitality Mills disposed of its interests.

Taste Engineering's pet food division supplies basic ingredients of all types. Mr. Steinle specializes in products for feed and ingredient manufacturers.

G.L.F. Begins Poultry Processing

ITHACA, N.Y.—Cooperative G.L.F. Exchange, Inc., has entered the poultry processing and marketing field, assuming management and sales of Crosby Poultry, Hinsdale, N.Y.

Located near Olean, the plant serves more than 300 stores and restaurants in western New York state and northwest Pennsylvania, and buys from more than 100 poultrymen in the same area.

Although formed in 1920 as a farmer purchasing cooperative, officials noted, G.L.F. has been marketing farm products for more than 25 years. Produce handled includes fresh eggs, dry beans, pastry flour, potatoes, onions and sour cherries. The cooperative's marketing division operates two dry bean processing plants, a flour mill, an onion warehouse, three Long Island potato packaging and warehouse plants and a frozen cherry plant, all in New York. A separate egg marketing division handles eggs through nine plants in New York, New Jersey and Pennsylvania.

C. K. Hobbie, G.L.F. marketing division manager, said the Hinsdale operation will be modernized and expanded from 150,000 lb. to 300,000 lb. of meat packed weekly.

G.L.F. plans to broaden the line of whole and cut up fryers to include frozen fowl, turkeys and roasters, Mr. Hobbie said. The plant will be federally inspected.

Norton Lane, G.L.F. marketing division grain buyer, has been named acting plant manager. Donald McCusker is plant sales manager.

G.L.F., owned by 115,000 farmer-members, operates feed mills, seed plants, fertilizer and chemical plants, farm hardware warehouses and a chain of petroleum terminals and distribution plants in New York, New Jersey and the northern counties of Pennsylvania.

Its products are sold through 231 retail service stores and 300 franchised dealers.

Florida Amends Law On Georgia Broilers

ATLANTA — An apparent solution to the recent restrictions on poultry shipments from Georgia to Florida has been worked out by a new amendment to the Florida poultry law signed by that state's commissioner of agriculture.

According to a report in the Georgia Poultry Times, the Florida commissioner, Nathan Mayo, has signed an amendment which is expected to allow Georgia's poultry processors to ship broilers into Florida without the necessity of having them graded by a federal official.

The publication reported the action in Florida followed the issuing of new rules and regulations by the Georgia Department of Agriculture which would have put restrictions on the movement of citrus fruits and sea food from Florida into Georgia.

Georgia's commissioner, Phil Campbell, was quoted as saying, "I am glad that we in the Georgia Department of Agriculture were able to get together with Florida officials and work out an agreement for labeling broilers going into Florida which is not excessively burdensome financially to the Georgia broiler industry."

D. MacGregor Dies

PORTLAND, ORE.—D. W. L. MacGregor, who was in charge of the Portland office of Balfour, Guthrie & Co., and president of Crown Mills until his retirement in 1947, passed away recently.

He is survived by three daughters, Mrs. John C. Hering, Mrs. John L. Day, Jr., and Mrs. C. Junt Lewis, Jr., all of Portland; two sons, Dugald and James A., both of Portland; 12 grandchildren and three great grandchildren.

Candidates for KC Board of Trade Offices Named

KANSAS CITY—Nominations for new officers of the Kansas City Board of Trade were announced this week. The two candidates for president are Robert J. Anderson, Norris Grain Co., who is now first vice president of the Kansas City exchange, and E. C. Hoebel, Bartlett & Co.

Dewey E. Walter, the Pillsbury Co., who is second vice president, automatically becomes first vice president under the board's election rules.

For second vice president, the nominating committee has chosen John B. Ronan, B. C. Christopher & Co., and George P. Scoular, Scoular-Bishop Grain Co.

Candidates for the six positions on the board of directors are: W. W. Farnen, Frank J. Farnen & Co.; W. W. Fuller, Central States Grain Co.; W. R. Johnston, Salina Terminal Elevator Co.; R. E. Larson, General Mills, Inc.; J. D. Tinklepaugh, Burrus Mills, Inc., and R. Hugh Uhlmann, Standard Milling Co., who is just completing his term as president of the board.

For the arbitration committee, nominees are G. R. Bicknell, Farmers Union Jobbing Assn.; P. E. Bowers, Interstate Grain Corp.; B. C. McCoy, Checkerboard Grain Co.; H. R. Schmid, Midwestern Grain Co., and J. W. Whitacre, Commander-Larabee division, Archer-Daniels-Midland Co.

Clearing house directors nominated are: John Dunn, Morris Grain Co.; F. J. Fitzpatrick, Simonds-Shields-Theis Grain Co.; John H. Rockwell, Cargill, Inc., and R. A. Wood, Goffe and Carkener.

For members of the nominating committee next year, K. S. Hart, Hart Grain Co., and John Stark, Mid-Continent Grain Co., were chosen.

OPEN HOUSE PLANNED

MADISON, S. D.—The Madison Farmers Elevator is planning an open house at its newly-remodeled feed plant. The company now has the franchise for Supersweet Feeds.

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—Jerry Parks
633 Board of Trade
KANSAS CITY, MISSOURI

BOWMAN PRODUCTS

VIANOL
Oil solubles vitamin protector and pigmentation aid.

BoA-S and Bo-A
Stable dry Vitamin A products.

BoDEE
Vitamin D-2 or D-3 in dry, oil or water dispersible forms.

BoDEE (Mineral) STABLE VITAMINS D
Vitamin D that will not decompose when combined with minerals.

XANTHOPHYLL CONCENTRATES
For better poultry pigmentation.

HYDROPOID
Dry, free-flowing partially hydrogenated animal fat.

CLOROFOLEN
Effective dog food deodorant.

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FDA Clears Cyanamid Antibiotic for Treating Swine Leptospirosis

NEW YORK—The U.S. Food & Drug Administration has cleared a new claim that the addition of the antibiotic Aureomycin chlortetracycline to the rations of swine will reduce losses caused by leptospirosis, the American Cyanamid Co. announces.

Although leptospirosis was relatively unknown in this country 10 years ago, losses now are estimated at more than $100 million a year, officials said.

As cleared by the FDA, feeding recommendations call for Aureomycin to be added to swine rations at a level of 400 gm. per ton. Feeding the antibiotic ration should start immediately after the disease is detected or suspected in the herd, and should be continued for a minimum of 14 days at the recommended level. The antibiotic should be removed from the rations 10 days before pigs are slaughtered for human consumption.

Application for FDA clearance of the claim was made by American Cyanamid following experimental work conducted by Dr. J. A. Howarth at the University of California and by Dr. L. C. Ferguson at Ohio State University.

The first report of leptospirosis in swine came in 1952. Since then it has become widespread among both cattle and swine, particularly in the Corn Belt.

Swine losses from leptospirosis are measured mainly in terms of baby pigs lost through abortion or death, and in the unthrifty performance of animals which have contracted moderate cases of the disease.

The new claim states that the daily feeding of Aureomycin at the recommended level for the proper time will aid in reducing the shedding of leptospirae (which spread the disease) and aid in the reduction of abortion rate and mortality of newborn pigs in the presence of leptospirosis.

The treatment is especially useful in breeding herds, according to Cyanamid. It has become standard practice in some areas to blood test all animals prior to breeding. The test as applied to a herd will indicate if a herd is infected or not.

"If infection is present, the recommended treatment with Aureomycin is the most practical and effective measure to reduce the risk of losing the pig crop due to leptospirosis." Cyanamid said. "Treatment should be carried out before breeding or shortly thereafter. Animals to be added to the herd should be first isolated and treated to avoid the possibility of introducing infection to treated or non-infected animals."

Symptoms of leptospirosis may appear in swine of all ages, although they are most noticeable in pregnant sows. Some of the more severe symptoms are yellow mucous membranes of the eyes and mouth, coffee or blood-colored urine and loss of appetite. While mild cases may escape attention, sows usually abort from one to four weeks before term. The rate of abortion ranges from 2 to 50%.

G.L.F. Announces New All-Mash Pullet Feed

ITHACA, N. Y.—A new all-mash grower ration somewhat lower in energy than other mashes it now has available will be added to the G.L.F. line of feeds Jan. 1, M. W. Backus, feed sales manager for the cooperative, announced in a recent issue of its publication, G.L.F. Week.

The low-calorie, all-mash ration will be known as G.L.F. Pre-Lay, and will give the co-op a total of three alternative feeding programs for pullet replacements available in 1959. In one program it is to be fed to pullets from 12 weeks to first egg.

USDA to Boost Rental On Grain Storage Bins

WASHINGTON—The U.S. Department of Agriculture has announced that the rental charge for use of Commodity Credit Corp.-owned bins temporarily not in use for storage of government-owned grains is being increased to 1¼¢ per bu. per month. This new rate will become effective March 1, 1959. Currently, the rental charge to commercial storage companies, farmers, groups of farmers, farmer cooperatives and others is ¾¢ bu. per month.

The increased rate will bring rental charges for CCC-owned bins more in line with rates established under the USDA Uniform Grain Storage Agreement, which applies to the storage of CCC-owned grains in commercial storage houses.

The action is designed to encourage the expansion of commercial and farm storage in areas short of grain storage, rather than year-after-year reliance on CCC bins which were purchased for emergency use only.

In instances, CCC has had difficulty getting rented bins emptied when leases expired and the bins were needed for CCC-owned grain because they were being used by renters for storage of their own commodities.

County agricultural stabilization and conservation committees have charge of renting CCC bins temporarily not in use by the government.

J. C. Tobin Advanced To Advertising Post

SAN FRANCISCO — Joseph C. Tobin, advertising and sales promotion manager for the Western-Waxide Division of Crown Zellerbach Corp., has been promoted to assistant manager of advertising and sales promotion for Crown Zellerbach.

Warren E. Townsend, formerly assistant to Mr. Tobin, has succeeded him as advertising and sales promotion manager for Western-Waxide.

Dr. B. L. Reid

JOINS PILLSBURY—Dr. B. L. Reid has been appointed director of new product research for the feed division of the Pillsbury Co., according to E. A. Blasing, director of feed nutrition and research for the division, Clinton, Iowa. Dr. Reid will join the company Jan. 5. He was formerly with the poultry science and biochemistry departments at Texas A&M College, and holds B.S., M.S. and Ph.D. degrees from that college. His research has been in the study of unidentified growth factors, trace mineral nutrition and energy studies in chicks, laying hens and turkeys.

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FALCON BRAND PULVERIZED WHITE OATS
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Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
October 4	1,103	433	767	760	214	567	1,601	1,674
October 11	1,087	499	584	727	156	570	1,576	1,690
October 18	1,110	378	633	713	116	495	1,445	1,643
October 25	1,056	419	589	646	96	557	1,486	1,566
November 1	1,033	416	768	707	127	535	1,813	1,570
November 8	1,094	470	814	795	180	655	1,293	1,927
November 15	1,099	382	825	797	173	654	1,293	1,871
November 22	1,075	560	818	797	174	676	1,580	1,746
November 29	1,015	584	857	861	127	736	1,605	1,551
December 6	1,042	522	856	870	143	656	1,645	1,653

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
October 4	956	563	2,351	313	4,927	144	2,382	1,723
October 11	1,039	478	2,398	344	4,942	151	2,525	1,639
October 18	932	446	2,352	362	5,002	182	2,355	1,637
October 25	834	485	2,229	315	5,034	180	2,285	1,613
November 1	894	571	2,307	297	5,121	213	2,496	1,668
November 8	796	611	2,416	327	5,095	185	2,654	1,654
November 15	878	574	2,294	364	5,016	201	2,648	1,727
November 22	941	468	2,359	369	5,196	192	2,685	1,796
November 29	1,008	481	2,444	381	5,320	245	2,650	1,830
December 6	1,006	506	2,439	347	5,388	249	2,628	1,903

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	1957
October 4	2,405	381	2,023	247	123	892	26,549	24,675
October 11	2,416	404	2,165	272	149	770	26,584	24,237
October 18	2,374	423	2,126	209	141	761	25,838	23,930
October 25	2,475	411	1,963	281	118	773	25,611	23,413
November 1	2,465	357	2,143	298	140	819	26,758	23,058
November 8	2,309	367	2,158	236	161	836	27,032	24,205
November 15	2,463	394	2,269	273	164	812	27,171	24,456
November 22	2,550	383	2,321	289	168	861	28,004	24,601
November 29	2,723	446	2,302	270	138	779	28,353	24,462
December 6	2,921	467	2,165	308	219	955	28,878	24,826

No Change Planned In Price Support Calculations

WASHINGTON — The Commodity Stabilization Service has abandoned its plans to eliminate the terminal loan rate basis for the establishment of price supports for barley, flaxseed, rye, grain sorghums and wheat—at least for 1959.

This information has been made public by William F. Brooks, executive secretary of the National Grain Trade Council.

In a letter to Mr. Brooks, Sidney V. Caughey, assistant director of the CSS grain branch, says in part: "After full consideration of alternative methods for setting price support rates, the department has decided that for the 1959 price support programs for barley, flaxseed, grain sorghums, rye and wheat, terminal market price support rates will be determined as has been done in prior years, and that county price support rates in the areas affected will be adjusted upward in the event that freight rates are reduced, by the amount of the decreases in the freight rates. There will be no change in the terminal rates because of changed freight rates, once they are announced."

Feed Demand Firms Oilseed Meal Futures

MEMPHIS—Cold weather over the nation stimulated good mixed feed business the past week, which in turn brought a firm tone to the oilseed meal futures market on the Memphis Board of Trade.

All contracts ended higher Dec. 10 than on Dec. 3, and many of them posted new seasonal highs.

Some hedges were shifted to more deferred positions.

The best gains were registered in nearby December.

Unrestricted soybean oil meal closed Dec. 10 $1 to $3 ton higher than on Dec. 3, Eastern Trunk Line soybean oil meal $1 to $4.50 higher, bulk solvent cottonseed oil meal 75¢ to $3.25 higher, and sacked old process cottonseed oil meal $2 higher.

Trading for the period totaled 12,300 tons of unrestricted soybean oil meal, 500 tons of Eastern Trunk Line soybean oil meal, and 1,300 tons of bulk solvent cottonseed oil meal.

NEW FACILITIES BUILT

ROCHESTER, MINN. — Four new grain silos of the Raddis Feed Co. in Rochester are nearly completed. The units have a 65,000 bu. total capacity. New additions to the company's facilities also include a dryer and a hydraulic scale.

M. Lawrence Bayern

STAFF ASSISTANT — M. Lawrence Bayern has been appointed staff assistant to F. O. Noel, animal industry products manager, agricultural division, American Cyanamid Co., New York. Mr. Bayern's former jobs with Cyanamid were animal feed representative in the north central states, and food industry representative in the northeastern states. In 1954 he was named animal feeds "salesman of the year." He is a graduate of Cornell University.

Trade Protests End Credit Sales

WASHINGTON—The credit sale program for feed grains has been ended. Effective date of termination was midnight, Dec. 1. In making this announcement, officials of the U.S. Department of Agriculture said that all deals completed for credit through Dec. 8 are valid. Action followed the voicing of a strong protest by trade interests.

The nine-man committee of the trade, which is headed by Carl C. Farrington, Archer-Daniels-Midland Co., recently wired USDA saying that the credit program volume had attained such levels as to impair the subsidy-in-kind program for feed grains.

In making available this information, USDA reported that more than $40 million in credit had been approved since Oct. 15 with grains committed to the value of $13 million.

USDA action appears to close the issue at least until the middle of January next year when there will be a meeting with the trade to discuss the matter.

MILLFEED

(Continued from page 1)

were caught short and the demand forced them to buy and raise the price level.

Flour mill running time is about the same as a year ago, they said, but it hasn't been sufficient to meet demand. Most mills are quite well sold out through December. January is available at about $2 under spot in Minneapolis.

Prices are expected to hold at present levels through December, but there is some feeling that the levels may drop when flour production picks up in January. Sellers maintain, however, that demand will continue to hold the January prices near their current levels.

Oilseed Meals

Spot linseed oil meal is also very strong at $72 bulk, Minneapolis, for solvent, an increase of $8.50 over the previous week. Only resale material is available for nearby in a very thin supply situation. Solvent material for February-March is quoted at $65.

Soybean oil meal prices also advanced during the week. Increases up to $3.50 ton were reported in Chicago, and Minneapolis spot meal climbed as much as $8. Unrestricted 44% meal was $60@61 bulk, Decatur, up $3. Kansas City reported 44% meal for Kansas City and western shipment at $59@59.50 bulk, Decatur.

January trading has been reported at $2 to $4 under current prices. It is believed that mixers are now fairly well stocked. Demand is reported to be only fair despite the tight supplies.

PURINA

(Continued from page 1)

we are feeding more livestock and poultry than ever before. We have added more feeder customers and dealer distributors. Our sanitation and farm supply division has also surpassed all previous years in sales," the board chairman said.

"New Purina Dog Chow has had spectacular growth in a remarkably short time, and has now reached a top position nationally among all dry dog foods.

"This year our soybean processing plants have produced more tonnage and have made more profits than in any previous year.

"Our grain merchandising division is becoming an increasingly important factor in our total business. Here also both volume of trading and profits reached a new high."

The report shows that Ralston Purina has 54 feed plants in the U.S., Canada, Mexico, South America and Cuba. Feed tonnage in 1958 came close to the coveted goal of 5 million tons.

A. E. STALEY

(Continued from page 1)

partment showed a significant increase in volume during the year, and improved results. Acquisition of the Arcady Farms Milling Co. of Chicago and integration of the Arcady plant contributed to these gains, the letter said.

While a favorable relationship between livestock and soybean meal prices stimulated an unprecedented demand for the protein-rich meal in livestock feeding, the accompanying soybean oil production levels brought considerable pressure on oil prices and exports were not large enough to head off a decline. However, the report notes, the net effect was an improvement in processing margins. "For the first time in several years the soybean division made a reasonable contribution to the company's aggregate profits."

Farm Managers Told About Staley Milling Egg Plan

By GEORGE L. GATES
Editor of Feedstuffs

CHICAGO — An egg production program operated by the Staley Milling Co., Kansas City, was described by Maurice Johnson, vice president of the company, at the annual convention of the American Society of Farm Managers and Rural Appraisers here.

The description of the egg program was part of Mr. Johnson's talk on "What's Happening in Contract Farming." Also appearing on the program was Frank Hunter, president of Hunter Packing Co., East St. Louis, Ill., which is cooperating with Staley Milling in a swine program.

A total of 50,000 hens have been placed in units of 5,000 each during a recent three-week period under the egg program, Mr. Johnson reported.

He described the program as a "trial project" different in concept from the swine program operated by his company for the past several months. The arrangements with egg producers are "tighter," with the feed company providing the hens and feed and the farmer providing the facilities and labor under an agreement to produce eggs for earnings of about 6¢ doz.

It is expected, Mr. Johnson said, that growers will be able to earn a gross income of $5,000 to $6,000 a year on operations of the present size. Their net earnings will be the remainder after paying for depreciation, utilities and labor. The egg units are located in a cattle-producing area.

Want Steady Supply

Agreements have been made by Staley Milling with "three or four" companies which wanted to secure a steady supply of eggs, Mr. Johnson said. Egg producers under the program, he pointed out, have the privilege of "buying out" of the agreement with Staley if they should decide to deal independently with egg buyers.

Egg processing plants in the area have been having difficulty in getting eggs in the formerly surplus-producing egg area, Mr. Johnson said. Farmers had marketed low-quality eggs and prices had become depressed, and many went out of egg production. The egg plants attempted to solve their supply problem by purchasing eggs from over a wide area before making the agreements with the milling company, he said.

"The arrangement provides the processors with a steady supply of eggs having good quality, and they no longer have to employ high-priced procurement methods," he said.

Mr. Johnson stressed the fact that producers in a program of this type must be selected with great care because everyone is not a good husbandman. "If you put the wrong people in the program, then you are the loser," he said.

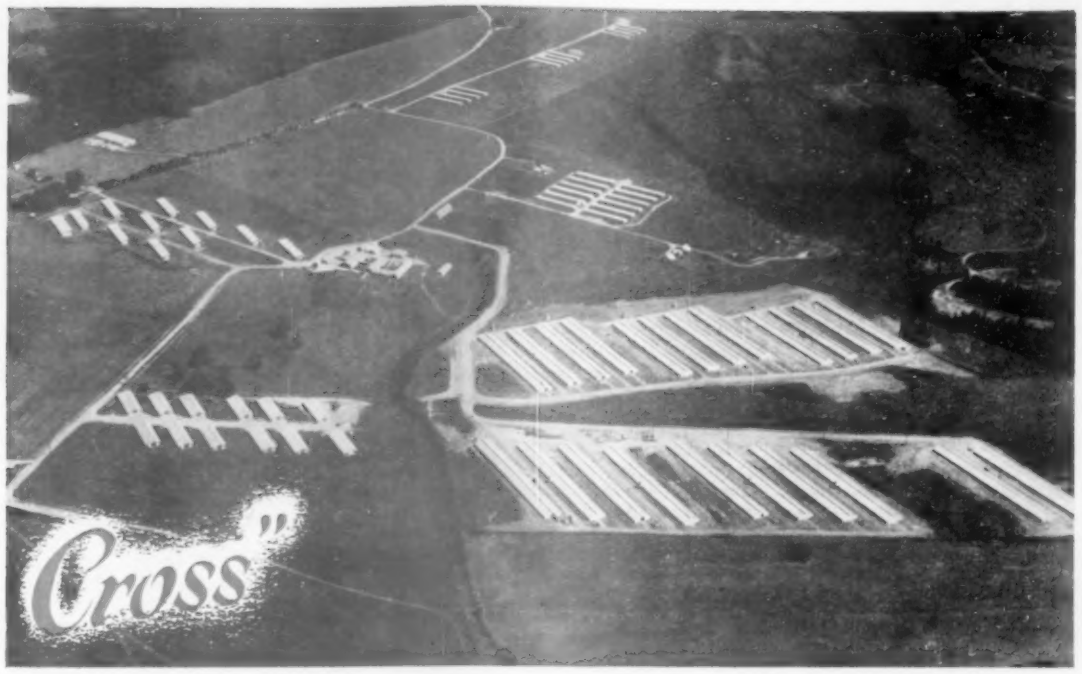
Other contract farming developments discussed by Mr. Johnson included broiler production. "Those of us in the broiler business are trapped in it. Losses are being taken by the feed manufacturer or processor growing his own birds, or by the hatcheryman if he is a part of the deal. The farmer, however, has his skill and can select the contract he considers most favorable. Most contracts now provide a 2¢ lb. guarantee to the grower."

Demand for Quality

One of the lessons learned on the positive side in the broiler industry is that consumers like good quality products. Similarly, it is known that there is good demand for quality pork at the right price, and this has led to contract methods of pork production, he said.

(Turn to EGG PLAN, page 98)

of the two antibiotics (50 gm. oxyte-



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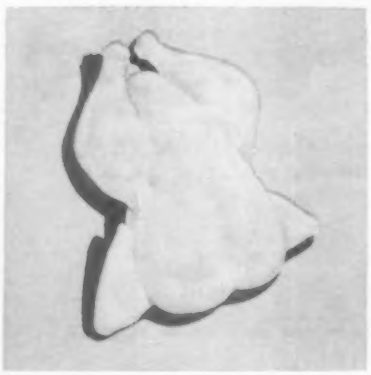

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Animal Production Society—Part 1

New Developments in Swine Feeding Studies Reported at Chicago Meeting

By Special Writer

CHICAGO—Some of the latest developments in livestock nutrition research were reported at the Golden Anniversary meeting of the American Society of Animal Production Nov. 28-29 at the Hotel Sherman in Chicago.

Attendance at the meeting totaled approximately 1,200 and included research and technical personnel from agricultural experiment stations, federal and industrial laboratories and the feed and allied industries. An extensive program of scientific sessions included a total of 258 scientific papers dealing with animal research in nutrition, physiology, breeding and genetics, meats and pasture and forages. The program also included special sessions on teaching and extension work.

New Additive

The nutrition reports covered a number of new findings in swine and ruminant research. Included among the various reports was the finding that gibberellin, a plant growth regulator, may improve growth performance. Various other additives and nutrients and nutrient relationships also came in for extensive discussion.

The remainder of this article is devoted to a review of swine research papers considered to be of interest to feed men. Papers on ruminant research will be reviewed in a second article.

Growth Stimulators, Anthelmintics And Hormones

A number of experiment station swine nutritionists are actively investigating the value of a long list of feed additives for growing-fattening swine and for gilts and sows during reproduction.

In a series of papers, researchers from the Kentucky, Purdue, Louisiana and Ohio experiment stations reported on the effects of antibiotics, anthelmintics, and certain drugs on growth rate, feed efficiency and internal parasite control in growing-fattening pigs. According to the results of feeding trials conducted by these investigators, it appears that combinations of antibiotics give a greater growth stimulation than a single antibiotic or certain other additives such as trimethylalkylammonium stearate, arsenosobenzene, arsanilic acid, or 3-nitro-4-hydroxyphenylarsonic acid. Twenty grams per ton of chlortetracycline (Aureomycin), in Ohio experiments, gave a 6-8.9% increase in gain of pigs over a 10-gram-per-ton level, and a combination of three antibiotics—10 gms. Aureomycin, 7.5 gms. penicillin and 2.5 gms. zinc-bacitracin (per ton of feed)—gave the best overall results, both in dry lot and on pasture. In Purdue experiments a combination of 5 gms. chlortetracycline, 2.5 gms. penicillin, 5 gms. oxytetracycline (Terramycin) and 7.5 gms. of zinc-bacitracin was used.

In experiments with the anthelmintic hygromycin (premix known as Hygromix), it was found to be highly effective in controlling ascarid and trichuris worm infestations in pigs, but had no consistent effects on strongyles. The effects of hygromycin on growth rate were variable; in the Purdue experiments hygromycin gave some depression of gains in three out of four comparisons; the Ohio results showed no growth depression; Louisiana reported a growth depression in only one out of three comparisons, and Kentucky results showed a slight depression in the absence of but not in the presence of antibiotics, arsanilic acids, and furazolidone. When fed in combination with antibiotics, the growth response was the same as with antibiotics alone. From a practical standpoint, hygromycin alone probably can be considered not to have any significant growth effects in healthy pigs.

It was reported, however, by the Purdue, Ohio and Louisiana researchers that hygromycin reduced feed consumption by pigs during the last half of the feeding period or after the pigs reached 100 lb. in weight. Nevertheless, feed efficiency was generally improved by hygromycin feeding.

New Antibiotic

Experimental results with the new antibiotic oleandomycin in rations for pigs were reported by researchers from Chas. Pfizer & Co. In baby pigs (10-56 days of age) oleandomycin or oxytetracycline alone increased daily gains 4-8%, whereas a combination of the two antibiotics (50 gm. oxytetracycline and 2 gm. oleandomycin) increased gains up to 20%. In growing-fattening pigs, the greatest growth response (4-10%) was obtained with combinations of 10 to 20 gm. of oxytetracycline and 2 gm. of oleandomycin, when compared with response of 1-6% from 2 to 10 gm. of oleandomycin or 10 gm. oxytetracycline alone.

In studies at Iowa State College with 3-nitro-4-hydroxyphenylarsonic acid at levels of 0.0025, 0.005 and 0.1% in rations for pigs, it was found that the arsenical had no consistent effects on growth rate, but gave small decreases in back fat thickness as determined by live probe. The addition of copper sulfate, alone, or in combination with the arsenical resulted in increased rate of gain.

American Cyanamid Co. researchers reported no deleterious effects from feeding cultures of Candida albicans to growing-fattening pigs fed practical rations containing chlortetracycline and Nystatin, alone or in combination.

Gibberellin

Preliminary feeding trials with gibberellin, a plant growth regulator, by Chas. Pfizer & Co. researchers, indicate that the compound is not toxic to pigs when fed at levels up to 1 gm. per ton and may improve growth performance. Results were presented from two feeding trials with 7-10 day old pigs fed for 42 days.

Crystalline gibberellin derived from fermentation was added to a corn-soybean oil meal basal ration at levels of 10, 100 and 1,000 milligrams per ton of feed. In the first trial statistically significant growth responses were obtained at the 10 and 1,000 mg. levels but not at 100 mg. In the second trial small growth responses were obtained at the 10 and 100 mg. levels but not at 1,000 mg. Thus gibberlin exerted a variable effect on the growth of pigs, and additional research is needed to determine its

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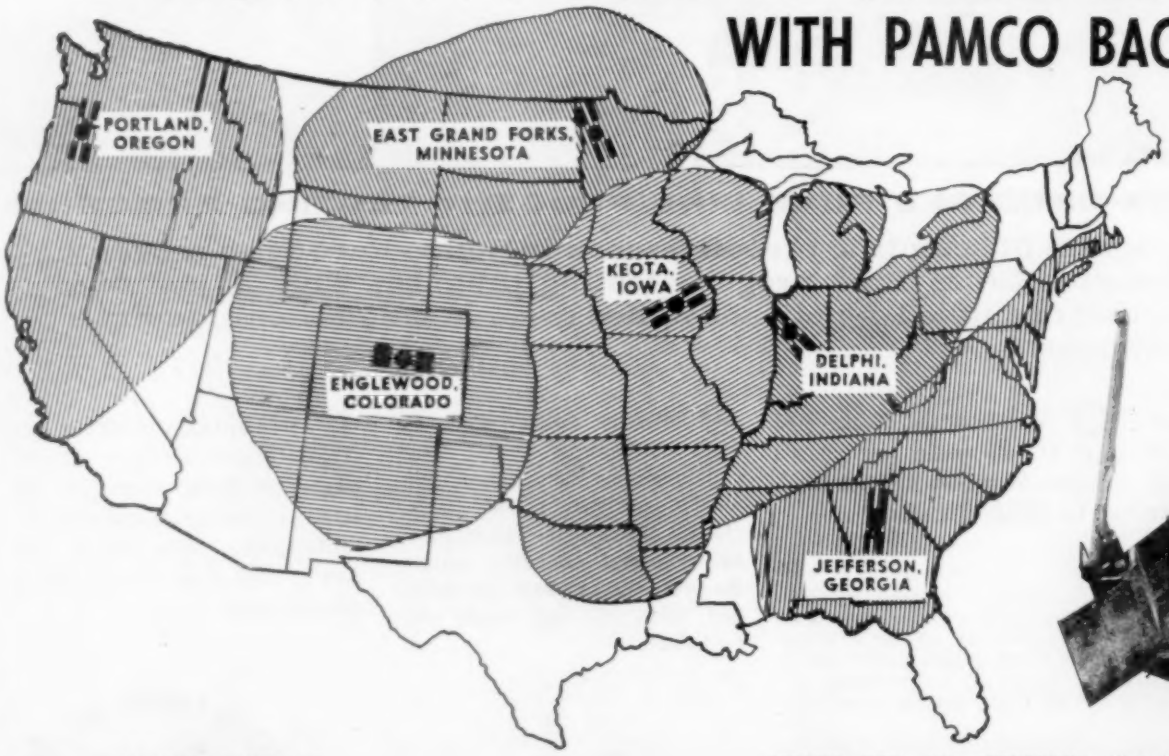

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BREAK GROUND FOR FEED MILL—A ground breaking ceremony recently started construction on the new $500,000 Riverside, Cal., feed mill for the Poultrymens Cooperative Assn., according to an announcement by Charles F. Allen, general manager. Pacific Milstallation, Inc., is general contractor for the plant which is to be in operation in early summer of 1959. Left to right in the picture are William Rudenga, Riverside branch manager; O. A. Henning, auditor of Eadie & Payne; Sherman J. Boss, manager of PCA feed department; Judd Payne, Eadie & Payne; Konrad Pesselt, Van Nuys district director; Truman O. Garinger, Riverside district director; Lloyd Schaffer, Atascadero district director; Elmer M. Gorsline, Lancaster district director; George Marsh, Los Angeles district director; Bill Okuda, Garden Grove district director; William Beard, president, Pomona district director, and Charles F. Allen, PCA general manager.

value as an additive for practical swine rations. (Additional studies with gibberellin in rations for lambs will be reviewed in the section on ruminant research.)

Hormone-Active Substances

Investigators from Purdue, Missouri and Tennessee reported experimental results from the feeding of hormone-active substances to swine. The Purdue results with several testosterone (male sex hormone) derivatives and diethylstilbestrol failed to indicate any significant effects on growth performance or carcass characteristics, except for slight decreases in back fat thickness with ration additions of one of the testosterone derivatives. Results of the Missouri and Tennessee experiments were similar, except that in the Missouri experiments stilbestrol feeding increased rate of gain in males and decreased gain in females. Boar carcasses had the least fat and the highest percentage of lean cuts; gilts ranked next; and barrows and spayed gilts were similar in carcass composition. Tennessee researchers reported stilbestrol had no significant effects on calcium, phosphorus, or nitrogen metabolism in barrows and rats.

According to Pfizer researchers, the feeding of an unidentified growth factor source (Vigofac) at a level of 0.45% in the ration of sows and gilts during a period from 3 days before to 7 days after farrowing (control and treated groups of 49 sows and gilts each) increased 0-7 day pig gains from 2.55 to 2.78 lb. and gave average 7-day litter weights of 59.6 lb. in the treated group as compared with 55.6 lb. in the control.

A field evaluation of the effect of chlortetracycline supplementation of gestation and lactation rations for sows, and creep and growing-finishing rations of their pigs was conducted by American Cyanamid Co. researchers. They reported that antibiotic feeding to sows (200 gm. 14 days before to 7 days after farrowing, then 50 gm. until weaning), to baby pigs (100 gm. 3-8 weeks), and to growing-finishing pigs (50 gm. to 75 lb. then 20 gm. to market weight or 50 gm. continuously) consistently improved pig performance at each stage of growth over non-supplemented controls, and increased the dollar return over feed cost 80-90¢ per pig.

The results of feeding a thyroid-active compound, triiodothyronine, were reported by Florida investigators. Supplementation of sows' rations with 300 or 600 mg. per ton of the compound from 3 days before to 14 days after farrowing failed to affect survival and weight gains of pigs; however, treated sows lost an

(Turn to page 14)

• • •

50 Years of Progress Noted at Society's Anniversary Meeting

CHICAGO—"Fifty Years of Progress in Animal Science" was the theme of the Golden Anniversary meeting of the American Society of Animal Production held Nov. 28-29 in Chicago.

In addition to the regular scientific sessions, a Golden Anniversary dinner was held Nov. 28 to commemorate the 50th birthday of the society and to give special recognition to the past presidents, and eight members chosen honorary fellows of the society for their outstanding contributions to the field of animal science. Those selected for this award included Dean M. H. Kildee, Dr. H. C. McFee, Dr. C. F. Huffman, E. N. Wentworth, Joseph M. Viall, Dr. J. L. Lush, Dr. E. W. Crampton and R. C. Pollack.

Also during a special session on Nov. 28, Dr. R. M. Bethke, vice president and director of research, Ralston Purina Co., St. Louis, presented an address entitled "Looking Into the Future."

The annual awards presentations included the $1,000 American Feed Manufacturers Assn. award and the Morrison award consisting of $1,500 and a gold watch. This year's winner of the AFMA award is Dr. Orville G. Bentley, newly appointed dean of agriculture at South Dakota State College and formerly professor of animal science at Ohio State University. (Feedstuffs, Dec. 6) The Morrison award was presented to Dr. J. K. Loosli, Cornell University. The featured speaker at the banquet was Dr. Oliver Willham, president of Oklahoma State University, who spoke on "Animal Breeding and Nutrition—a Challenge for the Future."

Advertisement

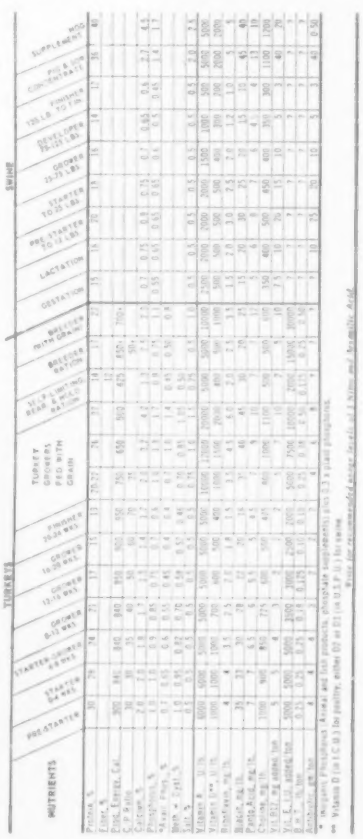
Feed for Thought

By J. R. LINSNER

The Peter Hand Recommended Nutrient Level Cards for 1959 are just off the press. This year the recommendations have been expanded to include more different types of feeds. Concentrates fed with grain have also been added for both the chickens and turkeys.

These recommendations are not minimums but provide substantial margins of safety in the event of disease or other stress factors.

Below are the recommendations for turkeys and swine as taken from The Peter Hand Recommended Nutrient Level Card for 1959. This 1959 card also gives suggestions for various chicken feeds, with the latest information concerning self-restricting grower rations. In addition, it includes metric equivalents and conversion tables which will be of value to nutritionists, purchasing agents, and others dealing with feed nutrients.



We will be happy to send Peter Hand Recommended Nutrient Level Cards for 1959 to those who drop us a line requesting them.

Look to the Peter Hand Foundation for all of your feed additive requirements and write today for your 1959 Peter Hand Recommended Nutrient Level Cards.

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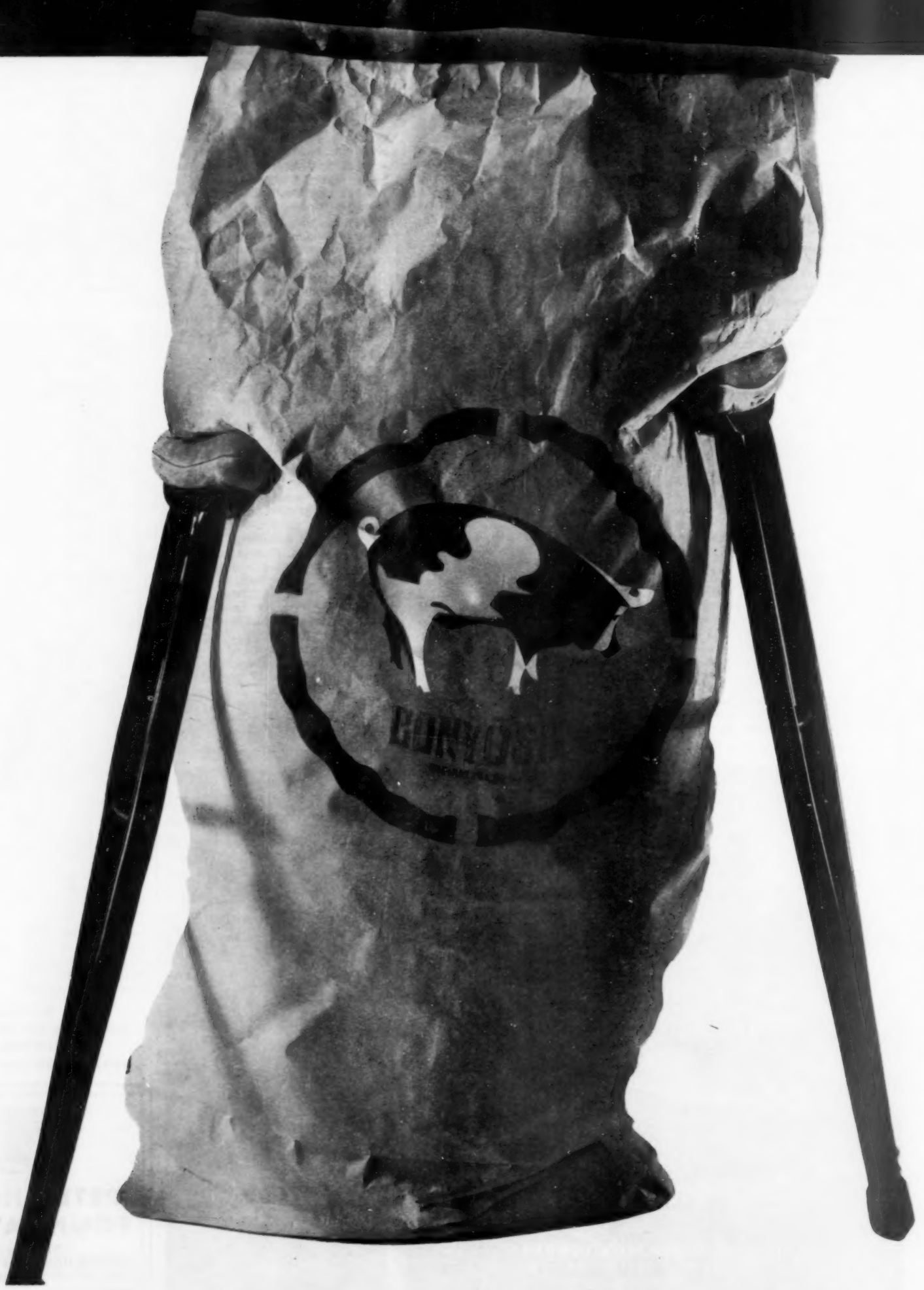

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1. McGinnis, J. et al.: Use-history of Antibiotics as Related to Their Efficacy in Promoting Growth of Turkeys. Poultry Science, in press.
2. Slinger, S. J.: Poultry Nutrition in Focus in a Rapidly Advancing Industry. Feed Bag, July, 1958.
3. Whitehair, C. K.: Medicated Swine Feeds. North Am. Vet. (Am. J. of Vet. Sci.) 39 (No. 2) (Feb. 1958): 32.

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average of 15.4 lb. more body weight than control sows during the experimental period. With weanling pigs triiodothyronine at a level of 15 mg. per ton of feed fed continuously, gave a statistically significant growth response in one of two experiments.

Minerals for Swine

The current research on minerals in swine nutrition is concerned primarily with certain of the minor elements (those required only in trace amounts) and their inter-relationships with some of the major elements such as calcium. Attention has been focused on the trace or minor elements because of the occurrence of parakeratosis in growing-fattening swine and new methods of anemia prevention in baby pigs.

The influence of dietary calcium, zinc and certain unidentified growth factor sources upon occurrence and prevention of swine parakeratosis received study in research at Kentucky, Purdue, Michigan State and Illinois. As has been previously reported, parakeratosis in pigs fed practical rations containing up to 1.2 to 1.35% calcium can be prevented, and the accompanying growth depression reversed by zinc supplementation of the ration.

It is interesting to note that in Kentucky experiments, parakeratosis did not occur in pigs fed purified rations containing calcium levels as high as 1.30%. Raising the level of calcium in the corn-soybean oil meal ration from 0.50% (which produced good growth) to 1.35% calcium reduced growth and resulted in a 50% incidence of parakeratosis. The addition of 5% distillers dried solubles failed to improve growth or to significantly decrease the incidence of parakeratosis; the addition of 130 parts per million of zinc prevented the disease and improved growth. Distillers dried solubles improved growth rate of pigs fed rations low in calcium or high calcium rations supplemented with zinc.

In Purdue experiments the addition of 5% DDS (distillers dried solubles), DDS ash, reconstituted DDS ash, 5% BDY (brewers dried yeast), BDY ash or 1 p.p.m. selenium to a basal ration containing 18 p.p.m. selenium increased gains but failed to prevent parakeratosis. Supplementation of the ration with 50 p.p.m. of zinc completely prevented parakeratosis and improved growth rate over all other treatments. In another experiment, in the presence of 50 p.p.m. of zinc, 5% DDS significantly improved growth; DDS ash, 5% BDY or BDY ash gave no increase in growth but improved feed efficiency 6 to 10.3%. Three parts per million selenium depressed feed consumption and gains, and 24 p.p.m. strontium depressed gains but feed efficiency was improved 5.2%. Crystalline Aureomycin, in another experiment, at 25 mg. per pound of ration, reduced or eliminated the growth response to DDS, BDY, dried whey or fish solubles.

Some very interesting research at Michigan State gives some indication of the basic physiological mechanism involved in the development of parakeratosis. Their results of blood studies indicate levels of serum alkaline phosphatase are depressed in pigs fed rations which produce parakeratosis, and this effect was found in both high and low calcium rations. Probably the most significant finding was that zinc supplementation of the rations overcame the reduction in serum alkaline phosphatase levels and gave large increases in the blood serum levels of zinc.

Zinc Requirement

Research designed to determine the zinc requirement of pigs was conducted at Purdue University. When total zinc levels of 16-46 p.p.m. were fed in a semi-purified ration containing 0.66% calcium, 0.47% phosphorus and 16 p.p.m. zinc to pigs weighing 10.5 lb. initially, growth increased with each increment of added zinc. Parakeratosis occurred in pigs receiving up to 36 p.p.m. of zinc, with

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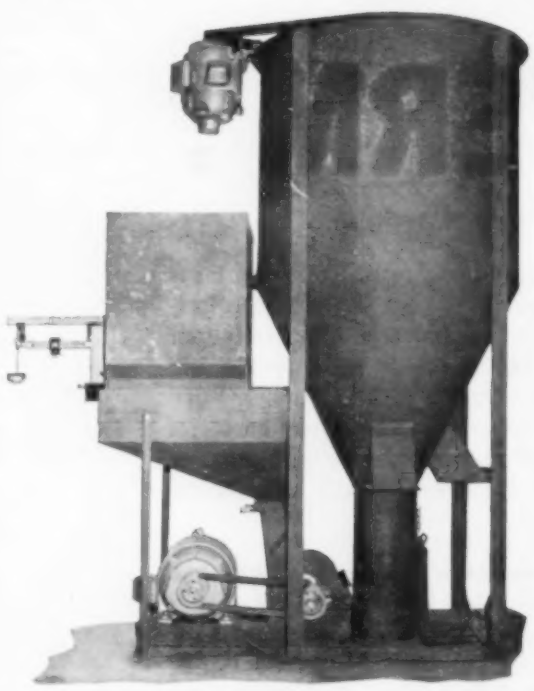

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450 lbs. Supp. @ $5.00	$22.50
1,550 lbs. Corn @ $2.50	$38.75
Cost per ton	$61.25

Broiler Finisher, 20% Protein

700 lbs. Supp. @ $5.50	$38.50
1,300 lbs. Corn @ $2.50	$32.50
Cost per ton	$71.00

Breeder Feed, 16% Protein

500 lbs. Supp. @ $5.25	$26.25
1,300 lbs. Corn @ $2.50	$32.50
200 lbs. Oats @ $2.50	$ 5.00
Cost per ton	$63.75

(Corn can be bought at this time of the year for $2.25, making the price of Layer Feed $57.38)

Recent Installations in North Carolina and Georgia:

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Fain's Hatchery, Edison, Ga.
H. L. Russell, Thomaston, Ga.
Guy Trip, Eastman, Ga.
W. T. Barbour, Fayetteville, N.C.
Piedmont Turkey Hatchery, Monroe, N.C.
Liberty Farm Sup., Liberty, N.C.
Holly Mountain Farms, Wilkesboro, N.C.

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ST. LOUIS, DECEMBER 1, 1958 —

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LION E-2

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New LION E-2 ammonium nitrate is available this month. It is an exclusive, premium quality ammonium nitrate fertilizer, yet LION E-2 will cost no more than ordinary ammonium nitrate fertilizers.

This combination of premium product performance at ordinary ammonium nitrate prices will make LION E-2 the most wanted ammonium nitrate in America. LION E-2 provides the same sales advantage as offering a high octane, additive-packed gasoline for the price of "regular."

For more information contact Monsanto at once. Write, wire or call:

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REPRINTS OF LINEAR PROGRAMMING ARTICLES AVAILABLE

The series of seven Feedstuffs articles on linear programming by Dr. Robert F. Hutton of Pennsylvania State University have been reprinted in booklet form. These articles appeared in the Sept. 27-Nov. 8 issues of Feedstuffs. Many nutritionists, management personnel and other feed men are expected to find the complete series valuable as the use of linear programming and electronic computers for least-cost feed formulation and other purposes increases. A number of companies already have computers or use commercial computing services. The booklet, called "Use of Linear Programming in Feed Manufacturing," is available at a price of $1 per copy. Orders may be sent to the Readers Service Department, Feedstuffs, P. O. Box 67, Minneapolis 40, Minn. Payment should accompany the orders.

some mortality from the disease at the lowest level of zinc. In a second experiment with higher levels of zinc (36-61 p.p.m.), it appeared that slightly more than 36 p.p.m. of zinc is required by the young pig for optimum growth and prevention of parakeratosis.

In additional research at Michigan State, the slow gains (1.01 lb. per day) of pigs fed a low calcium (0.50%) basal ration from weaning to market weight, were increased to 1.49 lb. by the addition of either 50 p.p.m. of zinc or 125 p.p.m. of copper and to 1.32 lb. by 100 p.p.m. of iron, whereas zinc plus iron gave daily gains of 1.18 lb. Parakeratosis (60% incidence on the control ration) was completely prevented by the zinc, zinc plus iron, and the copper treatments, whereas iron alone was not completely effective. There were no differences in blood hemoglobin or hematocrit levels among the ration treatments, but serum alkaline phosphatase values were higher in the zinc supplemented pigs.

Some highly interesting information concerning the toxic effects in weanling pigs on feeding extremely high levels of zinc was presented by Illinois researchers. They found in a corn-soybean oil meal ration, with levels of added zinc up to 0.8% (as reagent grade zinc carbonate), 0.2% was the maximum amount tolerated by pigs in a 42-day feeding trial. Toxicity at zinc levels higher than 0.2% was evidenced by depressed rate in efficiency of gain and reduced feed intake. Other manifestations of zinc toxicity included arthritis, extensive hemorrhage in the axillary space, gastritis, catarrhal enteritis, congestion of the mesentery, and hemorrhages in the ventricles of the brain, lymph nodes and spleen. On the high zinc levels, death occurred frequently within 21 days on experiment. Hemoglobin values, determined at 21 days, were unaffected by the zinc levels fed, and the addition of 1% calcium had no effect upon the levels of zinc tolerance or upon the toxic reactions. In other experiments with white rats, it was found that as the zinc level in the diet increased, total zinc excretion increased as a percent of intake while absolute urine zinc excretion remained constant. The effect of added calcium did not influence zinc excretion or weight gain.

Investigations of different methods of anemia prevention in baby pigs were reported on by Cornell, Michigan State and Iowa State College researchers. With pigs farrowed and raised in concrete dry lot, Cornell workers found that with iron-dextran, one 100 mg. injection may not be adequate. Daily spraying of the sow's udder with a ferrous sulphate solution was as effective as two iron dextran injections in promoting rate of gain and blood hemoglobin levels, and superior to a single iron-dextran injection. The weekly administration of iron-cobalt-copper pills gave equal growth but lower hemoglobin and hematocrit values at 3 weeks as compared with one or two injections. In Iowa studies, it was reported that one injection of 100 mg. of iron and iron-dextran appeared adequate for three-week weaned pigs, but that two injections or 200 mg. of iron appeared optimum for pigs weaned at 8 weeks of age. In a comparison of iron-dextran injections, ten 40-mg. doses of iron as ferrous sulfate, fresh soil daily and no treatment, all the iron treatments gave satisfactory hemoglobin levels, but the iron-dextran treated pigs were heaviest at 5 weeks of age. In another experiment a combination of three iron pills (292 mg. iron per pill) plus iron-dextran injection gave significantly greater weight gains than the injection treatment alone, and intra-muscular injection of iron-dextran showed a slight advantage in rate of growth over intraperitoneal injection but hemoglobin responses were similar.

Iron Requirement

At Michigan State, in experiments conducted to determine the oral iron requirement of the baby pig, maxi-

(Turn to SWINE FEEDING, page 88)

JAY BEE

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General view of Schreiber Mills' recently remodeled and expanded offices, warehouse, and milling facilities

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Schreiber Mills immediately bought four Jay Bee Model 4W 75 H.P. mills—**and these same Jay Bees are still operating today, along with the three other Jay Bee 4W's which Schreiber Mills bought later!**

Here is continuing and indisputable proof that a Jay Bee will outgrind and outlast any other hammermill made, conditions being equal—that Jay Bees are still the standard of comparison for high-volume, high-quality production, long life, and low-cost, trouble-free operation.

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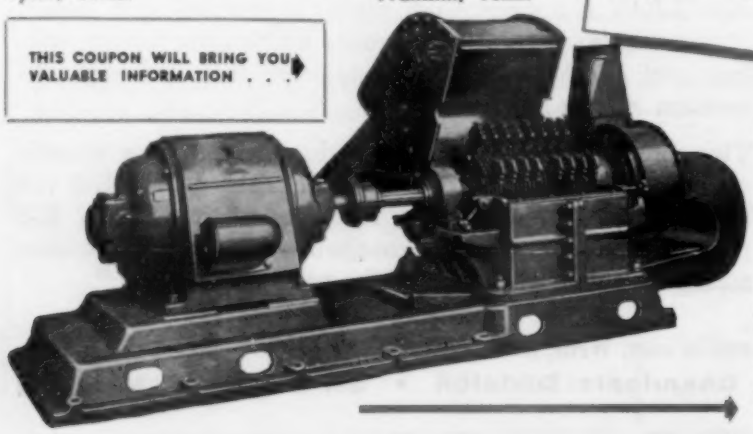

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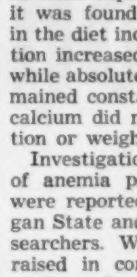

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What Does Vertical Integration Do To Competition for Feed Sales?

"The independent feed dealer will be forced to perform more integration functions, join an integrated system or slowly lose business"

By Dr. M. E. Cravens
Ohio State University

EDITOR'S NOTE: Vertical integration and contract farming were the subjects of a grain, feed and farm supply marketing conference recently at Ohio State University, Columbus. More than 400 feed men were on hand for this special event. One of the principal talks was that by Dr. M. E. Cravens, professor of agricultural marketing at the university. The accompanying article is from Dr. Cravens' talk. He explains the various ways in which he feels vertical integration will affect competition in the feed industry, and then he offers suggestions on what the independent feed man should be doing.

Vertical integration is a form of competition. It has come into being because of competitive forces and is in itself a distinct competitive force. It results from an attempt on the part of someone to increase his profits, increase sales, and reduce risk by more effectively catering to the needs of his customers. It is a part of a managerial and marketing revolution, a concept of looking at the over-all job of production and marketing, instead of piecemeal parts of the job.

We will concentrate in this article primarily on what appear to be the immediate effects of vertical integration on competition, with perhaps a warning of what could come later, if, as some fear, this integration is carried to where we have vast monopolies or the opposite of competition. It seems to me that vertical integration must affect competition in the feed industry in one of the following manners:

1. Feed price.
2. Dealer services.
   (a) Production.
   (b) Marketing.
3. Feed product differentiation—impression—reputation.
4. Effect on the quantity and quality of the livestock product.

Price Competition—When we think of competition, most of us immediately think of price. Actually, price is not the principal means of competition. Larger and more successful businesses are less inclined to stress price and more inclined to stress other forms of competition. To the extent that vertical integration increases business size, it might be expected to reduce the price competition somewhat. However, in other respects, vertical integration has increased local price competition. This is in price response to reduced costs due to bulk handling, quantity purchased, etc. The savings due to lowered costs are more likely to be passed on to the buyer than formerly—merely because if this is not done by a dealer, some competing dealer will offer the buyer better terms and take him away.

Dealer Services—This is probably the most important immediate area of added competition resulting from vertical integration. For instance, in broilers, the integrated producer does not buy feed; he buys an entire production program, or even a production and marketing program, from chicks to dressed broilers. An individual producer can, through integration, obtain the services of highly competent and highly paid experts in the production field.

However, in the opinion of some observers, the key to success in vertical integration is in the marketing services provided. The integrator has provided guidance on when, where and how to market the product and, of course, in many places, has guaranteed a price. He schedules production so that the processing plant that dresses the birds can be of an economically large size and can be fully used throughout the season.

Vertical integration has been in many cases almost synonymous with dealer financing of livestock production. I believe that most feed dealers would prefer not to finance, and only provide financing in order to sell feed. I also believe that many thousands of farmers do not prefer and do not need financing. If so, financing is not a necessity for either feed sales or for effective vertical integration, but to the extent that it occurs, it definitely contributes to greater competition to existing producers. Money that otherwise would not have come into livestock production is used to increase supplies produced.

Although integration has probably not changed feed price competition too much on the average, the effect of new producers, new money, new know-how, and new and better feeds on production and consequent prices of the finished product has been great.

Promotional—Impression—Reputation—People act on the basis of what they think. More and more firms are finding that the public has a quite different image of them or their product than they intend or prefer.

Feed integrators as well as non-integrators use the latest means of explaining how their product differs from that of competitors and how this is an advantage. Much advertising is used to create an impression of quality and economy for each brand of feed, but not all of it creates an image that is equally acceptable to livestock producers. The larger firms spend thousands on research and in formulating new feeds. With rapid advances in technology, this research gives the larger firm a continual advantage of a few months in most new feeding principles. Consequently, there tends to be an actual, as well as a promotional, advantage. Certainly integration and the increased size of firm have increased competition in this area.

In most of my remarks, the feed and feeding industry is lumped together as a whole. However, each of you must take advantage of your own situation and may not necessarily follow the industry trend now or at all. For instance, in a study of vertical integration in Meigs County, Ohio, some pertinent competitive facts showed up. Most growers felt that all feed companies had about the same price and quality of feeds and services, so they decided where to do their business, largely on the basis of the dealer's personality and human relation skills, whether they thought they could trust him, etc. The competition was often more among dealers as to personality than as to his feed or services. However, regardless of personality, it is easier to swim with than against the current and vertical integration is a strong current.

These researchers also felt that the growers' bargaining power with the dealer was increasing as more dealers offered similar services and as growers specialized and became larger.

Effect on Quality and Quantity of Livestock Products—In each type of competition, except possibly "feed price," vertical integration has tended to increase the amount of competition, even though it may have reduced the number of competitors. But this is not the whole picture.

Vertical integration's greatest increase in competition comes from the fact that hard-headed pencil pushers are continually looking for places where production and marketing are cheapest. Our increase in competition for Ohio is to a large extent outside Ohio. One firm can and does check costs of production and marketing from widely separated states or areas and acts accordingly. These competing areas are not taking our feed customers, but they are taking our livestock industry. For instance, in broiler production, the 10 southern states in 1950 had 43% of total U.S. production, while in 1957, they had 63%. The integrator will see to it that the production of broilers, or hogs or turkeys will move continually towards the area where the over-all job of producing and marketing can be done most economically.

A Southerner whom I know is confident that the South will take over pork feeding just as it has the broiler industry. His reasoning is: "We will produce for market while you will just grow hogs." What he means is that many of the leaders in the industry in the South are now completely consumer-oriented and he feels that we are not. They have nothing to unlearn, while we have much to unlearn, both among dealers and producers. We will have to do more figuring and take advantage of our strong points if we are to maintain our industry.

The increase in vertical integration in the feed industry has focused attention on the over-all job of production and marketing and brought home the fact that a cent saved in marketing is as important as one saved in production. Recognition of this fact has encouraged more study of marketing costs by individual firms. The integrating firms have been the efficient and aggressive firms that appreciated the need for research in all areas.

One side of the competition picture is often overlooked. It is the fact that all food producers are competing for space in the human stomach. I was reminded of this by a speech by I. S. Riggs, chairman of the American Feed Manufacturers Assn. It is unlikely that we can entice the consumer into eating more total food than the 1,500 lb. per year she is now eating. However, she is constantly replacing the less preferred foods with the ones that are more preferred. What does this have to do with competition among feed dealers?

Just this—since meat items are on the preferred list of foods for most people, they are in a good position to continue gaining stomach space—if they can be made more attractive

(Turn to page 22)

SPEAKERS AT RENDERERS CONVENTION—Feed industry speakers at the National Renderers Assn. convention held recently in Washington included the four men pictured here. Talking things over (left to right) are: W. E. Glennon, executive president, American Feed Manufacturers Assn., Chicago; Dr. George M. Briggs, chief, nutrition unit, Department of Health, Education & Welfare, Bethesda, Md.; C. A. Denton, acting head, nutrition section, U.S. Department of Agriculture, Beltsville, Md., and Dr. Gerald F. Combs, poultry nutritionist, University of Maryland.

A. J. Berwick

DOANE PRESIDENT—A. J. Berwick has been elected president of the Doane Agricultural Service, Inc., St. Louis, to replace Rex R. Bailey, who recently announced his retirement. Mr. Berwick has worked for the firm for 28 years, and has for the past year served as senior vice president. Mr. Bailey will assume the joint duties of vice chairman of the board and chairman of the executive committee. A. Davis Elkin was elected senior vice president and will continue as secretary of the firm. D. Howard Doane, founder of the firm, remains as chairman of the board.

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Regardless of the turn of the profit cycle, fortifying rations with PRO-STREP is a sound investment. Feeds containing this effective combination of antibiotics help stimulate appetites, enhance growth and improve feed efficiency. PRO-STREP advantages add up to "Profit Insurance" for the poultry or livestock farmer.

Fit The Ration To The Farm–Not all herds or flocks require the same amount of antibiotic protection. On farms where the disease incidence is relatively low, growers can expect excellent results using rations fortified with as little as 25 grams of PRO-STREP per ton of feed. In the presence of disease or at times of stress, rations containing higher

	SWINE		CHICKENS *(Layer and Breeder Rations)*	
Penicillin		Penicillin is absorbed and carried through the blood stream to every part of the body to effectively check pathogenic, gram-positive organisms. Penicillin also stimulates feed consumption, enhances weight gains and feed conversion. Grower is able to market more uniform pigs.		Penicillin is absorbed into the bloodstream of the growing or mature bird. It is carried to every part of the body and is effective against harmful, gram-positive organisms. Penicillin is particularly helpful at times of stress in maintaining or increasing hatchability of fertile eggs.
Streptomycin		Effective for prolonged periods of time in the intestinal tract, streptomycin acts against the gram-negative bacteria so often responsible for bacterial enteritis ("necro"). *Streptomycin will not interfere with the action of beneficial intestinal flora.*		Streptomycin is slowly absorbed from the intestinal tract. It provides "crop-to-vent" protection against pathogenic, gram-negative organisms. Streptomycin will not interfere with the action of beneficial intestinal flora.
A PRO-STREP Level for Every Ration	**LOW LEVEL—25 Gm./ton.** Feed continuously to stimulate growth, improve feed efficiency, increase feed intake and promote better uniformity of gains. **MEDIUM LEVEL—50 Gm./ton.** Feed continuously until pigs are 50-75 pounds to: prevent bacterial swine enteritis; stimulate growth; improve feed efficiency; stimulate feed intake; and help promote better uniformity of gains. If outbreaks of enteritis occur, feeds containing 100 Gm. of PRO-STREP should be used. **HIGH LEVEL—100 Gm./ton.** To treat bacterial swine enteritis feed rations fortified with PRO-STREP for 4-5 days or until symptoms disappear. PRO-STREP at the 100 Gm. level also may be used until pigs are 50-75 pounds to: stimulate growth, improve feed efficiency, increase feed intake and assure better uniformity of gains.		**LOW LEVEL—25 Gm./ton.** Feed continuously as an aid in maintaining or increasing egg production and to stimulate growth and improved feed efficiency. In the presence of disease, rations containing 100 Gm. are recommended. **HIGH LEVEL—100 Gm./ton.** The following claims may be listed on your tags when PRO-STREP is fed at high levels to chickens: **a.** Reduce mortality and hasten recovery from C.R.D. **b.** Treat nonspecific infectious enteritis. **c.** Maintain feed intake and weight gains during C.R.D. and nonspecific infectious enteritis. **d.** Aid in maintaining or improving hatchability (of fertile eggs). **e.** Aid in maintaining or improving egg production. **f.** Prevent early chick mortality due to organisms sensitive to penicillin and streptomycin. **g.** Improve feed efficiency as related to egg production or weight gains. *Suggested feeding schedules:* 1. Feed the first 10 days—then 3-5 days during, or immediately after, such stress factors as Newcastle disease or bronchitis vaccination, debeaking or housing pullets. 2. Feed for the first 10 days and then for 3 days out of every week until birds are marketed. 3. Feed continuously in case of disease outbreaks.	

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Here's how the dual action of Procaine Penicillin and Streptomycin Sulfate in rations fortified with PRO-STREP will help improve feed efficiency, fight disease and enhance growth in turkeys, broilers, layers and swine.

CHICKENS *(Starter and Grower Rations)*		**TURKEYS**	
	Penicillin is absorbed into the chick's bloodstream and carried to every tissue and organ in the body. Penicillin is effective against the gram-positive organisms. Many of the bacteria susceptible to penicillin are incriminated in secondary and subclinical infections in young chicks. Penicillin also has a profound effect on stimulating growth, enhancing effective feed conversions and stimulating feed consumption.		Penicillin, absorbed into the bloodstream, affords maximum protection in all the tissues and organs of the body against the effects of gram-positive pathogens. Penicillin also is valuable in promoting economical weight gains in poults.
	Streptomycin is slowly absorbed from the intestinal tract. It provides "crop-to-vent" protection against harmful, gram-negative organisms. *Streptomycin will not interfere* with the action of beneficial intestinal *flora.*		Streptomycin provides "crop-to-vent" protection against gram-negative organisms in the bird's intestinal tract. Slowly absorbed from the intestines, *Streptomycin does not interfere with the action of beneficial intestinal flora.*
LOW LEVEL—25 Gm./ton. Feed continuously to stimulate growth of chicks and to improve feed efficiency. In presence of disease, recommend rations containing 100 Gm. of PRO-STREP. **HIGH LEVEL—100 Gm./ton.** The following claims may be listed on your tags when PRO-STREP is fed at high levels to chickens: **a.** Reduce mortality and hasten recovery from C.R.D. **b.** Treat nonspecific infectious enteritis. **c.** Maintain feed intake and weight gains during C.R.D. and nonspecific infectious enteritis. **d.** Aid in maintaining or improving hatchability (of fertile eggs). **e.** Aid in maintaining or improving egg production. **f.** Prevent early chick mortality due to organisms sensitive to penicillin and streptomycin. **g.** Improve feed efficiency as related to egg production or weight gains. *Suggested feeding schedules:* **1.** Feed the first 10 days—then 3-5 days during, or immediately after, such stress factors as Newcastle disease or bronchitis vaccination, debeaking or housing pullets. **2.** Feed for the first 10 days and then for 3 days out of every week until birds are marketed. **3.** Feed continuously in case of disease outbreaks.		**LOW LEVEL—25 Gm./ton.** For best results turkeys should be placed on low levels from hatching until they are 16-20 weeks of age. Low-level antibiotic rations will stimulate growth and improve feed efficiency. In the presence of disease, or on farms where the disease level is high, use rations containing 100 Gm. of PRO-STREP. **HIGH LEVEL—100 Gm./ton.** At this level rations fortified with PRO-STREP will: treat bluecomb and infectious sinusitis; help maintain weight gains during outbreaks of these two diseases; prevent early mortality of poults due to organisms sensitive to either streptomycin or penicillin; help reduce losses following periods of stress such as vaccination, debeaking, chilling, moving, overheating; improve weight gains and feed efficiency in poults even in the presence of disease.	

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price-wise, quality-wise and other ways. As an example, the per capita consumption of broilers has increased by about eight times since 1940.

Perhaps nothing this spectacular is still possible in the meat products line. No one knows, but an integrated production-marketing program can exploit consumer desires through lowered production costs as well as through the quality and type product that the retailer and consumer want. If vertical integration can help us produce and market better quality eggs at a lower cost, the total egg market could well be expanded still further. Similarly, any system of producing and marketing the type in demand should increase total meat consumption.

Let's Look at the Industry Again—Everyone is worried. Many who 10 years ago had a good business, now wonder about the present and future. This is true of the food retailer, the appliance dealer or the feed dealer. Many had become accustomed to "reasonable" profits and may not have been greatly concerned about growing—sort of an attitude that all is well—people will always need feed and I'm here, am honest and well liked, so I can expect to take a reasonable cut on each bag or item and live well, etc. Then along comes the new competition. You've reacted in many ways—from trying to pretend that nothing has happened, to quitting the business entirely.

The reactions have been much the same as with the coming of the supermarket in the grocery business some 25 years ago. The decision had to be made whether to grow and become a supermarket, cut down to a mamma and papa store, or what? You are faced with similar decisions. It is impossible to stand still. You either outperform your competition and grow, or you die.

Some of the Developments that Will Affect Your Future—J. C. Huckabee of Quaker Oats, in an article in Feedstuffs predicts an increase in the number of plants operated by a national brand company such as his. Formerly, such companies thought of one large plant located where grain was cheapest. Tomorrow, perhaps plants will be located to serve feeders in a 100-mile radius. Day after tomorrow, perhaps, they will serve feeders in a 50-mile radius. This would mean efficient 40,000-80,000 ton plants for producing the fast selling lines with other lines produced in less widely scattered plants. In other words, a blanket of the livestock area with low cost, high quality, bulk distributed feeds.

Is this the feed "supermarket" trend? Will Purina, Master Mix, Ful-O-Pep, Tuxedo, Pillsbury and the rest blanket the feed market much as A&P, Kroger, Safeway, etc., have blanketed the food market? I'd have to answer probably—on the basis of what I now know. Even so, there is room in the food business for the aggressive, well-managed local retail organization that offers consumers what they want. The largest food retailer in Columbus is Big Bear, which is not a national or even a statewide organization. In Cleveland, it is Fisher Brothers, again a local organization. I do not believe that competition forces bigness of a national scale in either the feed business or the food business. However, it has become more and more difficult for the lone and lonesome independent to survive and prosper. He generally ties up with other firms in performing functions where there are advantages in size, such as in procurement of marketing services or advertising or research or else finds himself inefficient and behind his larger competitor. Of course, this joining together is another form of integration called horizontal integration.

The major local factor need not be a national brand or a national firm. There are differences in the food and feed business that may alter this comparison. Feed dealers have vertical integration and extensive services for customers. Retail food stores offer limited customer service, but rather are more inclined to integrate back towards the producer. The aim of both is to satisfy their customers, but the feed store must look at both the ultimate consumer and the grower customer, while the chain can concentrate on the consumer. It's still a case of satisfying customers though.

Independently owned stores and small local chain groups are often not behind their large chain competitors on procurement, management services, research and other know-how. In many cases, they have gone together with others in like situations, either in trade associations or otherwise, to develop their own brands, to secure management advice and to exchange experiences. By the same token, independent feed dealers are going to be forced to obtain added management advice and other services if they are to provide the added services and knowledge needed to compete with the larger national concerns, either with or without vertical integration.

In order to serve the modern feeder, the dealer must also be larger and know more about nutrition, disease, breeding, business management, and have a feed that will compete costwise. He must be flexible enough to give discounts for bulk feed, long-term contract buying, etc., if these save him money because his competition will stand ready to do it if he doesn't.

Conclusions: The history of the American economic system is one of

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continued change resulting from more or less effective competition. The rapid development of vertical integration in the feed and feeding field is one more stage in this development for agriculture. Only time will tell whether it is sound and will stay. I think it will, since it is essentially market oriented, producing for markets and organizing the marketing to take full advantage of efficient production.

1. The independent dealer will be forced either to perform more integration functions, join an integrated system or slowly lose business. This means that he will have to:

(a) Grow large enough to handle large feeding accounts efficiently.

(b) Work more with other independent dealers.

(c) Improve quality and quantity of research, business management services, feeding know-how, and general attitude of serving his customers.

(d) Understand, preach and practice the art of producing and marketing the quality, type and quantity of product desired by the market.

(e) Be astute enough to realize his limitations in financing production or other risk-increasing functions.

It might even be possible that individual dealers or associations of dealers would use college graduates or even Ph.D.'s in providing specialists in sales and services to equal or better those of their competition. One way or another, the dealer must provide more knowledge on the operation than the grower already possesses if the integration is to succeed and if he, as a dealer, is to grow.

2. The development of monopoly in the feed or feeding industry does not appear likely to me in the near future. Perhaps the best deterrent to this is the development of strong independent dealers and dealer groups.

AWARDED SCHOLARSHIP — Gordon Riley, advertising director of Texas Farm Products Co., Nacogdoches, Texas, hands James Gray, Clayton Community, Panola County, Texas, the Lone Star scholarship to Texas A&M College, at a recent 4-H awards banquet held in Nacogdoches. James was awarded the $250 freshman scholarship for his outstanding leadership in 4-H club activities and his interest in animal science. At the banquet, he was also named a Texas delegate to the National 4-H Congress.

Buys Lift Truck Firm

WILLOUGHBY, OHIO—The Heifred Co. has purchased the Hustler Corp., an electric lift truck manufacturing firm. Both firms are located in Willoughby. Heifred officers will take over active management and R. V. Woodley, former Hustler president, will remain as sales director. The new name of the company will be the Heifred Corp.

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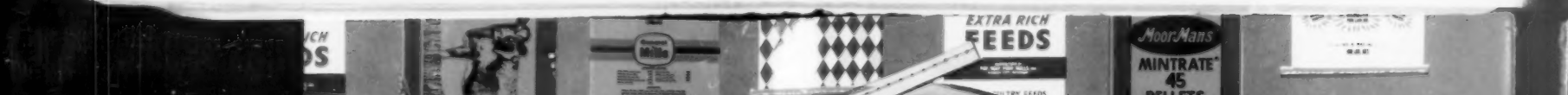

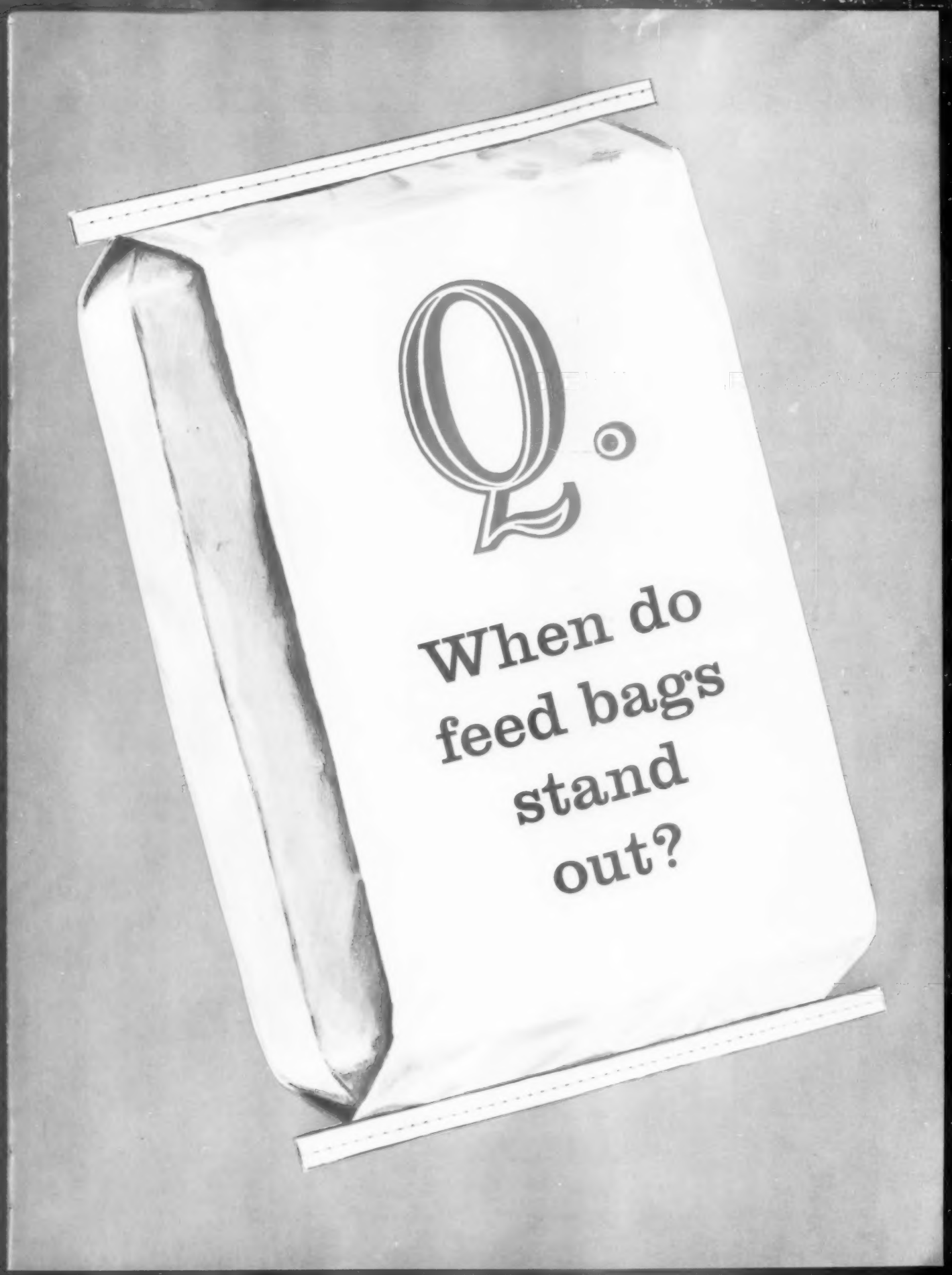
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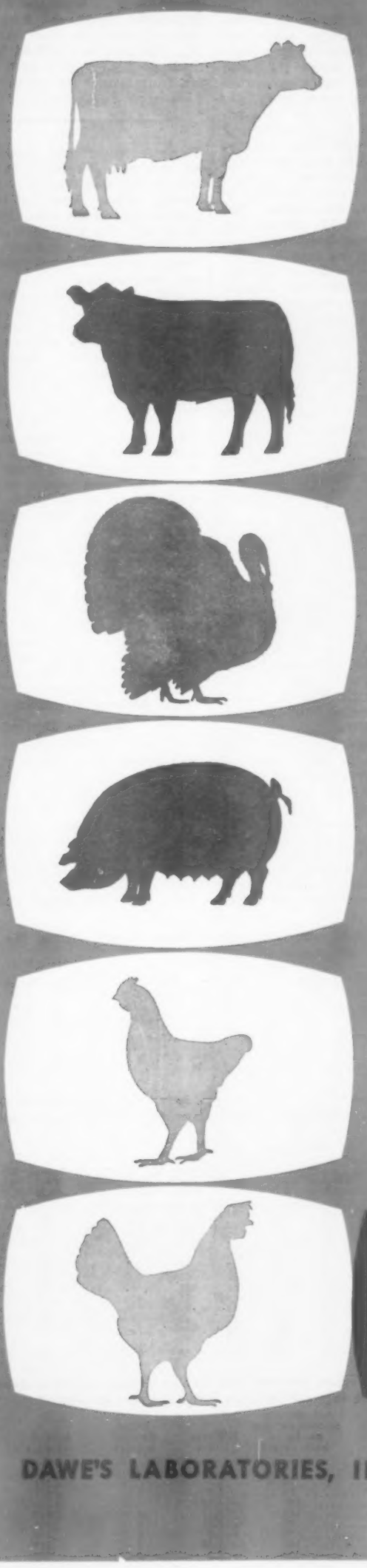

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AMINO ACID REQUIREMENTS

By Dr. James B. Allison
Rutgers University

EDITOR'S NOTE: This is the second in a series of articles on amino acids in animal nutrition. Like other articles in the series, this was one of the papers on amino acids presented at the recent annual meeting of the Animal Nutrition Research Council in Washington, D.C. Dr. Allison is with the Bureau of Biological Research, Rutgers - The State University, New Brunswick, N.J. The studies reported here were made possible in part by a grant-in-aid from Gaines Dog Food Division of General Foods Corp.

Amino acid requirements of animals can be estimated through dietary nitrogen retention in the body for maintenance and growth. This retention is a function primarily of the nitrogen intake, caloric intake, the pattern of essential amino acids and the physiological state of the animal. Given an ideal pattern of amino acids, the nitrogen intake necessary for maintenance and growth is minimum. (1-10).

To illustrate the factors which affect the requirements for amino acids, dietary proteins with different patterns of amino acids have been fed to various animals and the responses measured in a number of ways. The data in Table 1, for example, illustrate the patterns of essential amino acids in several dietary protein sources used in the following studies. It may be assumed that these data, determined analytically, represent the pattern presented to the body in the intestinal tract if digestion is orderly and quite complete. There are, of course, some exceptions to this assumption, but it is believed to be approximately valid for the protein sources presented in this table.

The first line in Table 1, labeled reference, is an attempt to select an efficient pattern of essential amino acids for growth from the data presented here and previously. (1). Such a pattern will vary somewhat with the species, often differing for maintenance when compared to the requirements for growth and varying also with the physiological state of the animal. The reference, however, has usefulness for the selection of the most probable limiting amino acid in the diet. The results to be discussed here indicate also that the pattern of amino acids which is most efficient for growth is also most efficient for repletion of depleted adult tissues and thereby represents an over-all good pattern for all ages. Emphasis has been placed upon the essential amino acids although it is recognized that an imbalance of non-essential amino acids may affect nitrogen retention, especially in experimental diets made up of mixtures of these acids. In general, however, natural foodstuffs have a goodly supply of the non-essentials where balance between them is not a critical factor in nitrogen retention.

Adult Dog

The nitrogen intakes necessary to maintain nitrogen equilibrium in the adult dog are recorded in Table 2 (11). The minimum values for amino acid intakes are illustrated in the last column. Assuming that the limiting essential amino acid will be the major controlling factor for the utilization of the dietary amino acids for protein synthesis, these minimum values should represent an efficient pattern for maintenance in the dog. That such an assumption is approximately true is indicated by the calculations of Mitchell and Block (8), of the Committee on Protein Requirements of F.A.O. (12), and more recently those of Howard et al. (7). These data in Table 1 illustrate the correlation between nitrogen requirements for maintenance and the pattern of essential amino acids. The pattern found in egg is one of the most efficient of all those found in natural foodstuffs. Casein was found to be slightly deficient in sulfur amino acids so that adding methionine improved the efficiency of utilization of this protein source. The amount of methionine added to the casein in this experiment may have been in excess of the exact amount needed, but this supplementation did make the nutritive value of casein for maintenance in the dog equivalent to egg. Similarly adding lysine to the wheat gluten diet made the nutritive value of this protein source equal to the value for casein.

Previous data indicated that the pattern of amino acids, most efficient for maintenance, is similar to the one required for maintenance and growth in the puppy except that the nitrogen intake must be increased. The nitrogen intake for maintenance and growth in the weanling beagle puppy, for example, was determined to be 1 gram per day per kilogram of body weight, this value reducing to approximately 0.5 gram at 10 weeks of age and then to 0.2 gram per day per kilogram of body weight in the adult.

Weanling Cat

The nitrogen requirement of the weanling cat, however, was found to be much higher than in the dog being approximately 2.7 grams per day per kilogram of body weight, this value decreasing to 1 gram at 20 weeks and then to 0.5 gram during adulthood. (13). Although the pattern of essential amino acids has not been adequately determined in the cat, preliminary data indicate that the pattern for growth is similar to the one illustrated in Table 2. The pattern for maintenance, on the other hand, was found to be different, the sulphur amino acid and lysine requirements in the adult cat being much lower than those same needs for growth. Thus wheat gluten, which has a low nutritive value for both maintenance and growth in the dog, because of a lysine deficiency, has a much higher nutritive value for maintenance in the adult cat than in the dog. Similarly, the rat requires less lysine for maintenance than for growth. (8). Casein has been found to be slightly deficient in sulfur amino acids for both maintenance and growth in the dog and in the rat, but casein is not so deficient for maintenance in the adult cat. (14). These variations in requirements emphasize again the limited usefulness of a single reference pattern to determine amino acid deficiencies under varying conditions and in different animals. As pointed out before, however, a depleted adult needs approximately the same pattern for repletion as for growth, making the pattern for growth the safest guide to determine deficiencies in the diet of a population of all ages.

Protein-Depleted Dogs

The combined effects of nitrogen intake, pattern of amino acids, and caloric intake on repletion of the protein stores of the adult dog are illustrated by the data recorded in Table 3. Dogs were depleted in protein stores by feeding a protein-free diet for 28 days at which time they lost approximately 10 to 15% of their body nitrogen. The animals were repleted by feeding the different protein sources recorded in this table. The immediate response to each diet is recorded as the initial nitrogen balance; the higher this balance the better the response. During the feeding period, as the protein stores were repleted, the nitrogen balance decreased toward equilibrium. This rate of decrease with respect to days of feeding the diet is illustrated in the fifth column of the table. The last column records the calculated amount of nitrogen added to the body during the period of repletion to approximate nitrogen equilibrium.

These data demonstrate the higher nutritive value of casein for repletion compared to the value of wheat gluten. Casein was shown to be deficient in sulfur amino acids and wheat gluten in lysine for this process of repletion to about the same magnitude as these deficiencies were observed for maintenance. An intake of 75 calories per day per kilogram of body weight is the normal intake for the adult beagle under laboratory conditions. Such an intake keeps a good proportion between lean body mass and the fat stores. The data in Table 3, however, demonstrate that using the intake of 140 calories per day per kilogram of body weight increased markedly the rate of repletion. This higher intake of 140 calories is approximately the requirement for growth in the very young puppy. Continued feeding of such a high intake to the adult dog, after the stores had been filled, produced an obese animal. Although the animals approached nitrogen equilibrium when fed the low intake of casein (0.6 gm.) and only 3.2 gm. of nitrogen had been added to the body, continued feeding of this intake would slowly replete still further, thereby gradually replacing all of the nitrogen lost during the period of depletion.

These values in the last column represent, therefore, the repletion that took place during a period of relatively rapid change in nitrogen stores where the decrease of positive nitrogen balance to nitrogen equilibrium was approximately linear (3). It is possible, therefore, that the greater repletion observed when the dogs were repleted by feeding 1 gram of casein nitrogen per day per kilogram of body weight with 75 calories is real and associated with the slower rate of repletion.

The data recorded in Table 4 illustrate the gain in body weight per gram of nitrogen intake and the nitrogen retained (expressed as positive balance) per gram of nitrogen intake in beagle puppies fed egg albumin or casein or wheat gluten. (1). All three groups of animals gained about the same weight, but those fed the egg protein gained the most nitrogen and were lean and active. Those fed casein also gained well in nitrogen and appeared to have a good balance between lean body mass and the fat stores. Those fed the wheat gluten diet, on the other hand, were obese and the gain in nitrogen for growth was approximately one-third that observed in the puppies fed the egg protein diet.

A study on growth of rats resulted in relatively similar data on the retention of nitrogen for growth, but the gain in body weight paralleled the nitrogen retention, being greatest in animals fed egg protein and least in those fed wheat gluten. Indeed, the gain in body weight was essentially a linear function of nitrogen intake for each dietary protein source, the lines cutting the ordinate of intake at approximately 0.7 gram of nitrogen when those intakes were measured over a period of 28 days. The slopes of these lines, called nitrogen growth indexes, were determined in male rats by feeding them a given protein source from the time of weaning for a period of 28 days. These indexes were egg albumin, 32; casein 25; cottonseed meal, 14; wheat gluten, 6.6; supplementing the casein with methionine increased this index to be equivalent to the values for egg. Supplementing the wheat gluten with lysine increased the index to the value observed for casein.

Patterns Derived

A pattern of essential amino acids was derived from these data in the same way as the one for maintenance in the dog. The pattern was expressed as a ratio to threonine taken as unity, as follows: arginine, 1.3; histidine, 0.6; isoleucine, 1.5; leucine, 2.1; lysine, 1.7; phenylalanine, 1.4; tyrosine, 0.8; total aromatic amino acids, 2.2; cystine, 0.8; methionine, 0.6; total sulfur amino acids,

TABLE 1. Amino acid patterns in various dietary protein sources. The values are expressed as mgs. per gram of nitrogen.

Protein source	Argi-nine	Histi-dine	Iso-leu-cine	Leu-cine	Lysine	Methi-onine	Cys-tine	Phenyl-alla-nine	Tyro-sine	Threo-nine	Tryp-to-phan	Valine
Reference pattern ..	240	120	300	400	330	120	140	220	175	200	60	300
Egg albumin	374	151	403	548	450	260	186	371	208	278	72	466
Beef	402	203	323	488	537	169	84	243	185	281	63	321
Casein	244	190	397	626	506	203	25	338	322	305	60	460
Cottonseed meal ...	702	166	236	369	268	86	102	327	171	221	74	308
Peanut flour	705	139	259	442	218	52	90	307	181	174	49	285
Wheat gluten	230	124	284	450	126	104	148	315	174	175	48	266

TABLE 2. Milligrams of amino acid per kg. of body weight supplied by different dietary protein sources fed in sufficient quantities to maintain nitrogen equilibrium in the adult dog.

Nitrogen intake g. per day per kg. body weight	Egg albumin 0.2	Casein + methi-onine 0.2	Fish meal 0.22	Wheat gluten + lysine 0.25	Beef 0.26	Casein 0.27	Peanut flour 0.36	Wheat gluten 0.5	Min. values 0.2
	Mg. per day per kg. body weight								
Arginine	75	49	94	57	104	65	250	115	49
Histidine	23	38	25	31	52	51	50	62	23
Isoleucine	80	79	70	71	84	109	93	140	70
Leucine	109	125	104	112	125	172	160	225	104
Lysine	89	100	120		118	137	70	68	68
Phenylalanine	74	68	50	79	63	93	110	157	50
Tyrosine	42	65	35	43	48	88	65	87	35
Total aromatic	116	133	85	122	111	181	175	244	85
Methionine	52	60	39	26	44	55	19	52	19
Cystine	37	6	19	37	22	6	33	74	33
Total sulphur	89	66	58	63	66	61	52	128	52
Threonine	61	56	62	44	72	77	63	87	44
Tryptophan	14	12	14	12	16	16	18	23	12
Valine	93	92	71	66	84	125	103	134	66

TABLE 3. Average values obtained while feeding different dietary proteins to groups of protein-depleted dogs until nitrogen equilibrium was approached.

Dietary protein source	Approximate calories per day per kg. of body weight	Nitrogen intake	Initial nitrogen balance	Rate of repletion	Amount of repletion in nitrogen
		Gm. per day per kg. body weight			gm.
Casein	75	0.6	0.26	0.011	3.2
Casein	75	1.0	0.57	0.011	14.0
Casein	140	1.10	0.71	0.030	9.5
Casein + methionine	140	1.12	0.84	0.045	9.5
Wheat gluten	75	0.55	0.14	.003	2.9
Wheat gluten	75	1.0	0.22	.005	5.0
Wheat gluten	140	1.06	0.63	.019	10.0
Wheat gluten + lysine	140	1.1	0.72	.034	9.7

TABLE 4. The gain in body weight per gram of nitrogen intake and the nitrogen retained for growth per gram of nitrogen intake. (1)

Protein source	Body weight gain —Nitrogen intake—	Positive balance
Egg albumin	9.0	0.50
Casein	9.8	0.43
Wheat gluten	8.8	0.18

1.4; threonine, 1.0; tryptophan, 0.23; valine, 1.5. Multiply the values in this pattern by 0.44 to obtain the intake in grams of amino acids associated with 50 grams gain in weight. The minimum intake of nitrogen for maintenance and growth was estimated to be 1.7 grams which would be equivalent to approximately 10.6 grams of tissue protein. (15).

The pattern for maintenance in the dog can be calculated in the same way to be: histidine, 0.5; isoleucine, 1.6; leucine, 2.3; lysine, 1.5; phenylalanine, 1.1; tyrosine, 0.8; total aromatic amino acids, 1.9; cystine, 0.5; methionine, 0.7; total sulfur amino acids, 1.2; threonine, 1.0; tryptophan, 0.27; and valine, 1.5. Multiply these values by 44 to obtain the minimum intakes for maintenance expressed as mg. per day per kg. of body weight.

The data in Table 5 illustrate maintenance requirement in adult man. The pattern of essential amino acids for maintenance in adult man was calculated to be: isoleucine, 1.3; leucine, 1.8; lysine, 1.1; phenylalanine, 1.2; tyrosine, 0.7; total aromatic amino acids, 1.9; cystine, 0.4; methionine, 0.3; total sulfur, 0.7; threonine, 1.0; tryptophan, 0.24; valine, 1.5. Multiply the values in this pattern by 19.5 to obtain the intakes for maintenance expressed as mg. per day per kg. of body weight. The minimum nitrogen intake for maintenance in the adult was estimated to be 0.064 gm. per day per kilogram of body weight.

These patterns may be compared with reference patterns such as the one characteristic of egg which is: arginine, 1.2; histidine, 0.5; isoleucine, 1.3; leucine, 1.8; lysine, 1.5; phenylalanine, 1.2; tyrosine, 0.6; total aromatic amino acid, 1.8; cystine 0.6; methionine, 0.9; total sulfur, 1.5; threonine, 1.0; tryptophan, 0.25; and, valine, 1.5 or the reference pattern proposed by the Food and Agricultural Organization which was: isoleucine, 1.5; leucine, 1.7; lysine, 1.5; phenylalanine, 1.0; tyrosine, 1.0; total aromatic, 2.0; cystine, 0.7; methionine, 0.8; total sulfur, 1.5; threonine, 1.0; tryptophan, 0.5; valine, 1.5.

The nitrogen intake and the pattern of dietary amino acids also affected the composition of the tissues in the animal. A deficient nitrogen intake affected both protein and lipid metabolism, resulting for example in an increase of certain plasma lipids migrating with the globulin fractions. Similarly, deviations from the amino acid patterns presented above also altered the rate and kind of protein synthesis as well as lipid metabolism. (15). The data indicated that if the biological value of the dietary protein was less than approximately 60, the pattern of amino acids should be improved to obtain a normal development of body tissues. The data also demonstrate that the most efficient use of dietary nitrogen is correlated with a good pattern of amino acids but that the animal must receive sufficient nitrogen and calories in the diet to produce maximum development of lean body mass.

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TABLE 5. Milligrams of essential amino acids per kg. of body weight supplied by different dietary protein sources fed in sufficient quantities to maintain nitrogen equilibrium in normal adult man.

Nitrogen intake g. per day per kg. of body weight	Egg albumin 0.064	Milk 0.08	Beef 0.096	Casein 0.094	Peanut flour 0.114	Wheat gluten 0.16	Min. values 0.064
	Mg. per kg. of body weight						
Isoleucine	25.8	32.6	31.0	37.2	28.0	45.5	25.8
Leucine	35.0	78.0	47.0	58.5	49.0	71.8	35.0
Lysine	28.8	60.6	51.6	47.5	24.4	20.2	20.2
Phenylalanine	23.7	24.7	23.4	31.4	34.4	50.2	23.7
Tyrosine	13.3	26.0	17.8	30.2	20.2	27.8	13.3
Total aromatic	37.0	50.7	41.2	61.6	54.4	78.0	37.0
Methionine	16.5	12.5	16.3	19.2	5.9	14.6	5.9
Cystine	11.9	4.5	8.7	2.3	8.1	23.7	8.1
Total sulphur	28.4	17.0	35.0	21.5	14.0	40.5	14.0
Threonine	19.5	23.5	26.7	26.4	19.5	28.0	19.5
Tryptophan	4.7	7.2	6.0	5.6	5.5	7.7	4.7
Valine	29.8	35.0	31.0	43.0	31.8	42.5	29.8

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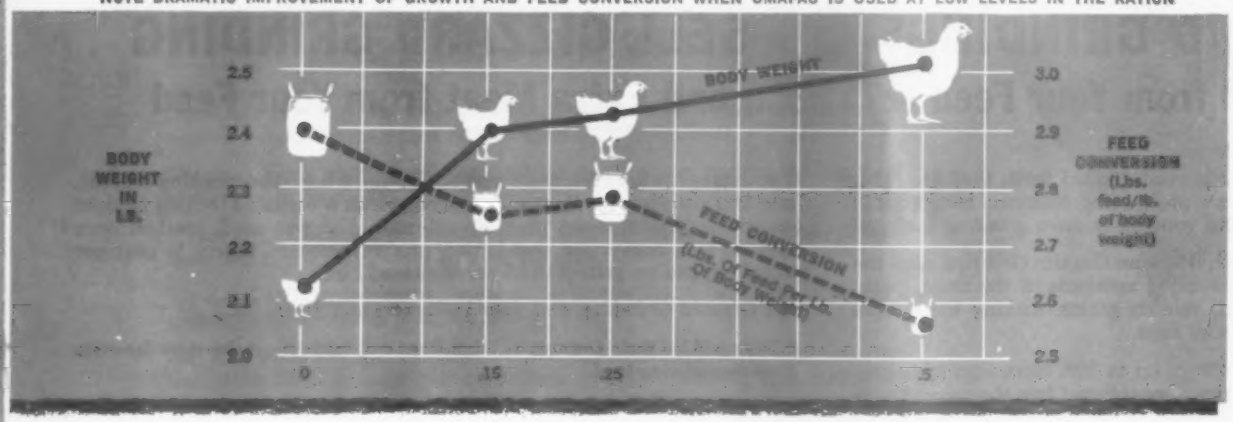

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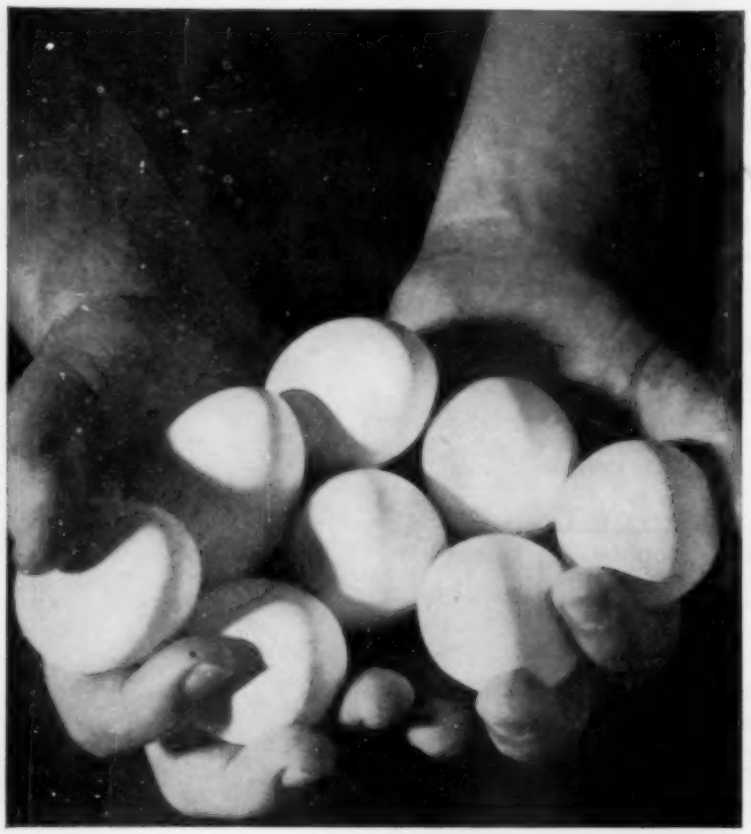

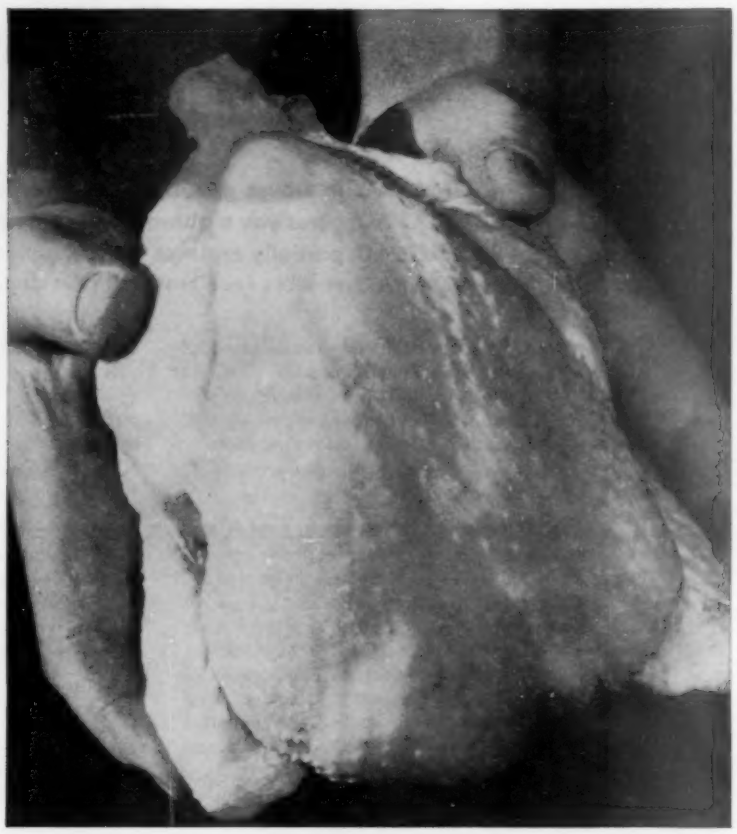

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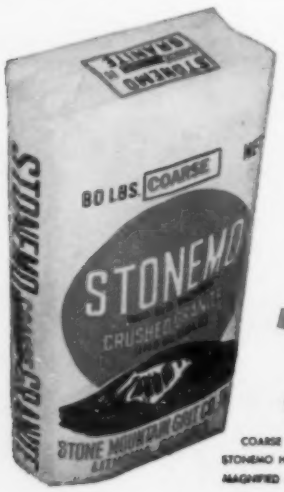

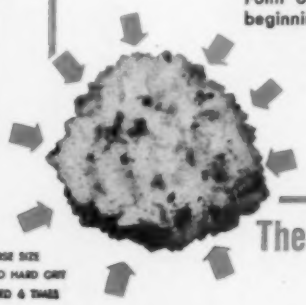

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Sta-Kleen ...another fine product to increase poultry profits

New York Cooperative Finds On-the-Farm Grading Is "Terrific"

WASHINGTON—A New York cooperative, in an effort to find out why and where many eggs drop below Grade A between the nest and the country assembly point, tried a three-month test of on-the-farm grading. The results were termed "terrific."

The cooperative's program, reported in the November edition of the Agricultural Marketing Service's booklet "Agricultural Marketing," was similar to those previously tried on the West Coast. The plan was new to the East, however, officials said.

With the assistance of the federal-state grading service (in New York the State Department of Agriculture), the cooperative found that by grading eggs at the farm, it was able to market consistently top-quality eggs. The demand for its product was good, and so were the returns to the farmer-members.

With on-farm grading well under way, the cooperative then began looking for other ways to improve the quality of its eggs and to more efficiently operate its program.

Cartoning was its second big venture. A 24-dozen egg case was developed for the cooperative—again with the aid of the federal-state egg grading service. Used for farm to co-op deliveries, it featured a special filler-flat to assure safer transportation of the eggs.

At the assembly point, new time-saving equipment was installed. A hand-operated pressure that lift picks up four dozen eggs at a time, the entire contents of one filler-flat, was added. A mechanical numbering device kept accurate count of each farmer's shipment, noting eggs in the various size categories.

In addition to mechanized handling, the grading process was accelerated. A number of licensed graders stationed along the "egg assembly line" performed this operation in one third to one half the time previously necessary.

This federal-state grading program insures week-after-week top-quality receipts, "Agricultural Marketing" reports. It places the cooperative in the position of offering buyer customers in New York City eggs that can be rehandled with predictable processing costs so far as yield is concerned.

Each of these production and marketing improvements has contributed to the quality and value of the eggs marketed by the cooperative. It has created a demand for this particular brand and has meant a stable outlet and better price for the producer-members.

First in Area

This cooperative was the first in the area to pay its farmers a premium for extra-large eggs. Also, the better the yield, the more money a farmer receives. The higher the percentage of AA and A eggs in a yield, the greater the premium to the farmer.

Since top quality means more money to the producer, the incentive to have the impartial USDA grading certificate show a high percentage of AA yield is practically self-sustained. In an average month, only one farmer out of 24 showed a yield below 90% AA and A. The over-all average that month for AA and A eggs was 91.3%.

What does it all boil down to? Co-operation all along the way. With the help of the federal-state egg grading service, farmers have become more quality conscious. They have found that efficiency results in greater profits. It produces a top-quality egg that attracts customers and establishes a ready market, "Agricultural Marketing" concluded.

W. Dale Speer

SALES REPRESENTATIVE—Union Special Machine Co., Chicago, has announced the appointment of W. Dale Speer as representative to cover the Cleveland, Ohio, sales territory. He succeeds Dave Lee, who has left the company. Mr. Speer's experience with sewing machines began with the Reliance Manufacturing Co., Bedford, Ind. He has since worked for several other companies, and joined Union Special Machine early in 1958 as a repairman at the Cincinnati office.

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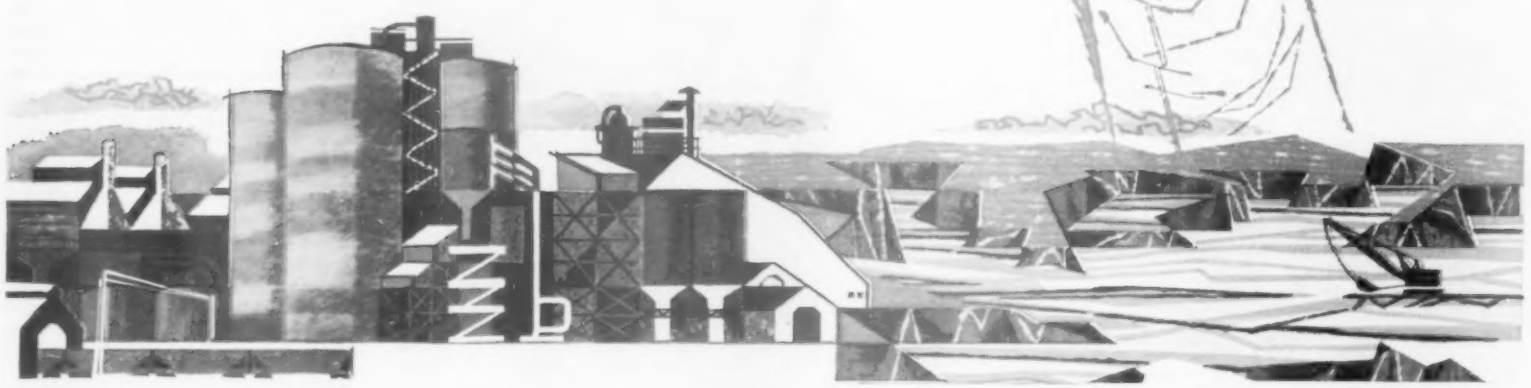

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An Evaluation of Energy Feeding Standards

Net energy is affected by factors completely independent of ration composition, the author notes. He suggests some serious thinking among feed manufacturers who now characterize and sell feeds on the basis of net or productive energy content

By Dr. Allen D. Tillman
Oklahoma State University

Feeding standards are tables showing the amounts of feed and feed nutrients, which should be provided in the rations of different species of animals, which are fed for different purposes such as growth, lactation, reproduction and fattening. These provide essential data for the design of certain types of nutrition experiments and serve as guides in formulating practical rations.

The first feeding standard was formulated by Grouven in 1859 and was based upon the chemical analysis of the feed regarding its content of fat, carbohydrates and protein. In 1860 Henneberg and Stohman at the Weende Experiment Station near Gottingen, Germany, proposed a standard based upon the digestibility of ration components. In 1864, Wolff devised a standard based upon digestible nutrients. It is interesting to note that his standards, which were unchanged for about 30 years, gave no special consideration to the maintenance and production requirements. An American worker named Haecker in 1914, after many years of research work, showed very clearly that the nutritive requirements of dairy cattle varied not only with the quantity of milk produced but with the fat content of the milk. The standard proposed by this worker was essentially the total digestible nutrient (TDN) standard of today.

Since the time of Haecker several standards based upon digestible nutrients have been proposed. Other nutritive yardsticks which have been proposed include Kellner's Starch equivalents, Armsby's net energy system, Fraps' productive energy system, digestible and metabolizable energy standards.

Energy Standards

When consideration is given to the over-all requirements of animals for the various nutrients, it becomes quite apparent that much more nutrient is required to maintain normal energy metabolism than for all other purposes combined. Many workers have pointed out that there is a high likelihood that if the need for energy were satisfied, all other essential requirements would be covered. Energy, therefore, is a highly important measure of nutritive value of feeds and is the major basis in the compilation of human as well as animal diets. This does not imply that protein and other essential nutrients should be ignored, for in many cases these nutrients are directly concerned with the utilization of feed energy.

Before a comparison of the usefulness of the various methods of expressing ration energy is made, we should look at the magnitude of the various end products of feed energy. Swift (1958) has summarized the results of Forbes et al. (1928) when beef cattle were fed a mixed ration fed at a level of about twice maintenance, and that summary appears in Table 1. It is significant to note that the results of Mitchell et al. (1932) agree very closely with those cited in this paper.

About 30% of the fecal energy was excreted in the feces; thus the digestible energy content of the ration was 70% of the intake. In the utilization of dietary energy, there were further losses of 3.8 and 7.3% in the urine and methane, respectively, leaving 58.5% of the dietary in the fraction called metabolizable energy. As pointed out by Swift (1958), the largest loss or overhead expense of feed utilization is the heat production which in this case accounted for 40.6% of the feed energy, leaving a gain of energy to the body of 17.9%. Various terms have been used to designate this fraction; net energy, productive energy (maintenance energy included) and indirectly the starch values of Kellner.

Such studies have also been conducted with other animals. Forbes and Voris (1937) found that dairy cows transferred 21% of their feed energy to milk energy. In a very recent experiment Hill and Anderson (1958) determined the metabolizable and productive energy value of a poultry ration using young chicks. By calculating on the basis of ration composition the gross energy value of the ration, the writer was able to prepare a chart for chickens (Table 2) similar to the one for beef cattle. Gain in body energy represented the average of 80 chicks being fed ad libitum. In this experiment the gross energy (calculated), metabolizable energy, and body gain values were 4.44, 3.34 and 1.27 cal./gram of dry matter. Thus you can see that the feces and uric acid accounted for about 25% of the dietary energy whereas heat production and gain accounted for about 27 and 48%, respectively, of the dietary energy. It is emphasized that differences in method of calculations and in the relative activities of the animals make a direct comparison of the two species meaningless in terms of their relative abilities to store dietary energy.

Total Digestible Nutrients: The TDN system of evaluation is the most widely used feeding standard in this country. It represents the difference between feed and feces obtained by a chemical analysis of these two items and is usually expressed as a percentage (digestion coefficient) for each component: crude protein, crude fiber, ether extract and nitrogen-free extract. The apparent digestibility of these components is thus determined, and in accord with their respective digestion coefficients a TDN value is obtained and is expressed on a weight basis. In the process, recognition to the energy aspect of the system is given by multiplying the weight of digestible ether extract by 2.25 before including it in the TDN result.

The term TDN implies that only digestion losses are considered in its calculation, but this is not true. In the early feeding standards digestible protein, fat and carbohydrates were added to give "total digestible substances." Later the current practice of multiplying fat x 2.25 was introduced. The reason for this calculation was apparently not well understood and probably originated from a consideration of Atwater's physiological fuel values which give fat 2.25 times the energy value of carbohydrates or proteins. It was overlooked, however, that the value for protein in the physiological fuel values was one in which the portion of the digested energy which was excreted in the urine had been subtracted. Thus, it would be more exact in accord with the terminology used to base the relationship of the three nutrients on their gross fuel values. If this were done, it would involve multiplying digestible protein by 1.36 and digestible fat by 2.25 if digestible carbohydrate remained the base.

The TDN system is widely used but has several limitations: (1) Results are not expressed on an energy basis, thus allowing comparisons with other standards for livestock or human populations; (2) the empirical chemical analyses are very laborious and time-consuming and involve appreciable experimental error.

Digestible Energy: Many workers have suggested that digestible energy, the energy of the feed minus that in the feces, be substituted for the TDN system. Digestible energy is more easily and accurately determined and possesses the advantage of being expressed in calories which are known the world over. It represents the potential value of a feed or ration and, as shown by Forbes, et al. (1928), Mitchell et al. (1932) and many others, is not appreciably affected by plane of nutrition, individuality within species, environmental or other factors which affect net or productive energy values. It is interesting to note that the 12 northeastern states have adopted digestible energy and digestible protein as measures of nutritional values of forages produced in that area. Further discussion of the digestible energy system will be found in the section entitled "metabolizable energy."

Metabolizable Energy: When discussing the determination and practical usefulness of this portion of the feed energy, one has to specify the kind of farm animal. In the case of the ruminant (sheep, cattle, goats, etc.) metabolizable energy is the digestible energy minus the energy of the urine and methane; the latter requiring much added labor and expensive equipment for its determination. With the simple stomach animal, however, only the urine energy is subtracted from the digestible energy for the determination of metabolizable energy content of a ration or feed. In the case of the chick, it is actually easier from the standpoint of time and labor to determine the metabolizable energy rather than digestible energy contents of feeds. The reason, of course, behind this apparent paradox concerns the excretion of feces and uric acid together. It is easier and more accurate to mix these fractions rather than to separate the uric acid from the feces.

Swift (1957) has clearly shown that in ruminant animals the relationship between digestible energy and metab-

Dr. Allen D. Tillman

AUTHOR—Dr. Allen D. Tillman is a professor of animal husbandry at Oklahoma State University, Stillwater. He received his bachelor's degree in animal science at Southwestern Louisiana Institute, and he obtained his M.S. degree at Louisiana State University, majoring in animal nutrition and biochemistry. He was on the staff at Pennsylvania State University and Louisiana State before being awarded his Ph.D. degree in the department of animal nutrition at Penn State. Dr. Tillman has been at Oklahoma State since 1952, becoming a full professor in 1957. His primary duties concern animal metabolism research. Dr. Tillman also spent a year in the University of Tennessee-Atomic Energy Commission agricultural research program. He is the author of numerous publications and a member of several scientific groups. The accompanying article is the text of a paper presented originally at the Oklahoma Formula Feed Conference.

TABLE 1. The percentage disposal feed energy by cattle fed at a level of twice the maintenance requirement (Swift, 1958).

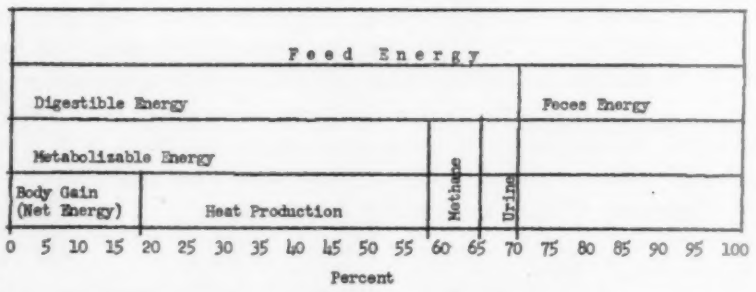
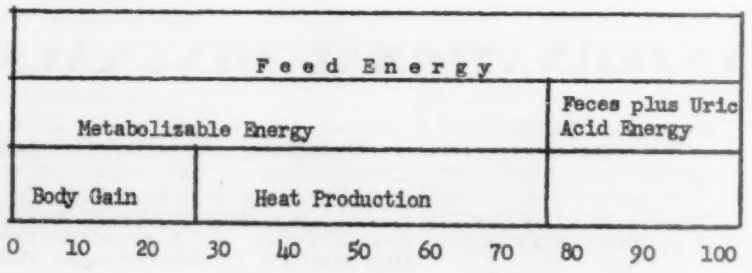


TABLE 2. The disposal of feed energy by chicks. (Essential data from Hill and Anderson, 1958.)



olizable energy is relatively constant, the metabolizable energy content amounting to 80% of the digestible energy. Thus for practical feeding of the ruminant animals, it appears that digestible energy is as good as metabolizable energy (Swift, 1958). The added labor involved in the analysis of the urine and in the measurement of methane to obtain a metabolizable energy value may well be prohibitive or impossible in some laboratories. It is emphasized that metabolizable energy represents the energy which may be derived from the feed and which is used for the production of heat, body tissues, milk, eggs or other useful products. Perhaps the simplest way to think of this relationship would be represented by the following formula:

Metabolizable energy — heat production = Gain (milk, eggs, etc.).

Net Energy: There seems to be general agreement that an expression of the actual usefulness of a ration for the purpose to be served is to be preferred over one which indicates its potential possibilities as do TDN, digestible and metabolizable energy standards. The early physiologists developed standards on the concept that the real value of a feed or ration was the fraction left after the expenses of utilization were subtracted from the feed energy; these expenses being, in the case of Armsby's net energy system, represented by the feces, urine, methane (ruminants) and heat increment. The "starch equivalent," so widely used in Europe, is in close accord with the net energy concept. The productive energy system proposed by Fraps for poultry feeds is also in accord with the net energy system except that the maintenance requirement of the animal is included. In other words the productive energy of a ration is used to maintain the animal and to promote tissue gain or egg production.

In theory, net energy is the ideal measure of the energy value of a ration. Even though the acceptance of the concept is widespread among livestock feeders, there seems to be very little understanding on the conditions involved in its experimental determination. At this point it should be emphasized that the basic approach of Armsby, Forbes and Swift, continued over a period of nearly 50 years, has supplied the basic facts necessary for evaluating the usefulness of the net energy system under

(Turn to page 40)

Howard F. Roderick

APPOINTED PRESIDENT — New president of the Sumner Chemical Co., division of Miles Laboratories, Inc., is Howard F. Roderick. He also has been elected vice president of the parent company, it was announced by Walter R. Beardsley, president of Miles Laboratories. Mr. Roderick formerly was vice president of the phosphate chemicals division of International Minerals & Chemical Corp. Earlier he was with Wyandotte Chemical Corp.

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G-AN-EN is a concentration of all these ingredients in handy dry form: fresh-dried whole whey, dried buttermilk, cheese rinds, brewers dried yeast, vitamin A and vitamin D_2 feeding oil (stability-improved), niacin, sulphates of iron, zinc, copper, and manganese chloride.

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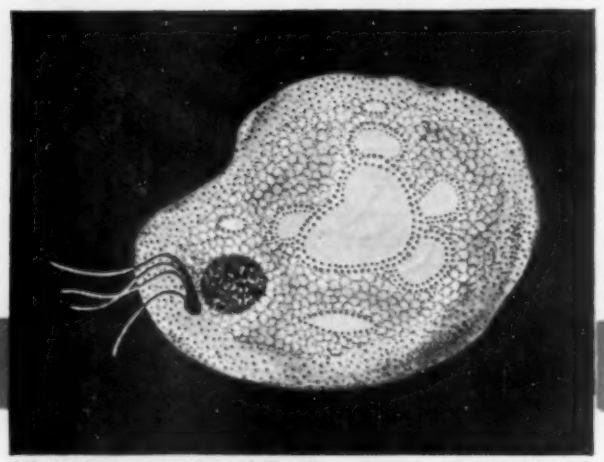

Histomonas meleagridis, the cause of blackhead infection in turkeys.

Add HepZide® to your Starter, Grower, and Finishing Rations

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Since its introduction in 1957, as a soluble powder for drinking water medication, HepZide has proved a highly effective compound for the **control** of both blackhead and hexamitiasis in turkey flocks. Now, after months of testing under rigid field conditions, a **new** pre-mix—HepZide Mixture "20"%—is available. Provide your growers with continuous, high-potency protection against costly outbreaks of these important protozoan diseases.

HepZide Can Be Fed—With Complete Safety—To Turkeys of All Ages—HepZide, a patented product of Merck, has demonstrated a remarkable degree of potency against the parasites responsible for blackhead and hexamitiasis. But, in marked contrast to other anti-blackhead agents, HepZide is safer in practical use—will not interfere with **growth, sexual maturity, subsequent egg production, fertility or hatchability.**

Feed Consumption Remains At High Levels—Reduced intake of medicated feeds sometimes presents a serious problem to growers in trying to finish birds with efficient feed conversion ratios. Not so with HepZide. Rations containing this compound at recommended levels are palatable, readily consumed by young, growing or mature birds. And sustained feed consumption helps poults make consistent gains in weight, means maximum protection against blackhead and hexamitiasis—from brooding to marketing.

CHART A

HepZide checks blackhead, hexamitiasis losses

Total Flock Mortality

50% NO PROTECTION

Less than 2% CONTINUOUS PROTECTION WITH HepZide

These Beltsville White turkey broilers were sold at 16 weeks of age with an average weight of 8.07 pounds and a feed conversion of 3.15.

HepZide Checks Blackhead Losses

A wide range of effectiveness has been demonstrated by HepZide in a series of trials conducted under practical field conditions. On one farm (Chart "A"), one flock of Beltsville Whites had suffered 50 per cent mortality due to blackhead and hexamitiasis. A second flock of 9,000 Whites started on the same premises, with little or no clean up and disinfecting of quarters, was placed on rations containing prophylactic levels of HepZide from the time they were one day-old to 16 weeks of age. **The less than two per cent general mortality in this second flock** attests to the high degree of protection against these two protozoan diseases.

NCY PROTECTION AGAINST

HEXAMITIASIS

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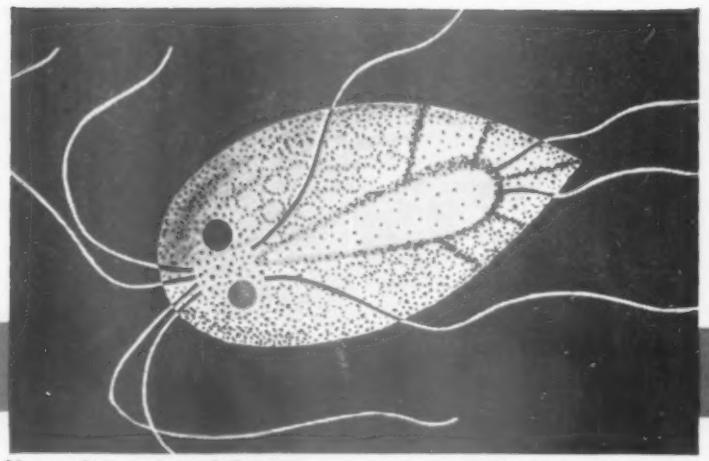

Hexamita meleagridis, the cause of hexamitiasis in turkeys.

CHART B*

HEPZIDE HELPS GROWER MARKET HEAVIER BIRDS ON LESS FEED

2,325 Broad-Breasted Bronze Turkeys

Birds Started	2,325
Birds Finished	2,225
Mortality (all causes)	2%
Age When Sold	24 weeks
Weight When Sold (toms)	26.3 lb.
Weight When Sold (hens)	16.5 lb.
Feed Conversion	3.79

According to the pathologist supervising this trial the "flock had good weight, feed conversion and livability. There was no evidence of blackhead at any time."

A continuous preventive program pays off—Blackhead infections, no matter how mild, rarely confer immunity against subsequent attacks. And even light infections, or subclinical infections with no outward signs of disease, may result in mortality or serious setbacks in weight gains. In addition, blackhead and hexamitiasis strike birds at different ages.

The most practical and economical approach to the problem of blackhead (and hexamitiasis) is the continuous use of feeds medicated with HEPZIDE. Prophylactic levels of this compound will check tissue damage and mortality as a result of these diseases, will help your growers market heavier birds at an earlier age.

*The results shown in Chart "B" are representative of those reported from flocks under varying farm conditions, fed rations containing low levels of HEPZIDE from the time they were placed on litter.

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This is a photomicrograph of an embryonated cecal worm egg (Heterakis gallinae).

Cecal worm eggs, carrying blackhead organisms, can survive in the soil **and transmit the disease for periods up to three years!** On overcrowded, or contaminated ranges, continuous protection against blackhead losses may be obtained through the continuous use of feeds medicated with prophylactic levels of HEPZIDE. Merck & Co., Inc., Chemical Division, Rahway, New Jersey.

Coccidiosis symptoms are sometimes difficult to detect—and, one sick poult can rapidly infect an entire flock.

S.Q.® (sulfaquinoxaline) added to your rations at low levels, will protect poults against profit-draining coccidiosis "breaks."

Are your customers interested in dual-action antibiotic fortification of their turkey rations? Recommend low-cost PRO-STREP® the effective combination of procaine penicillin and streptomycin sulfate in a ratio of 1:3.

HepZide

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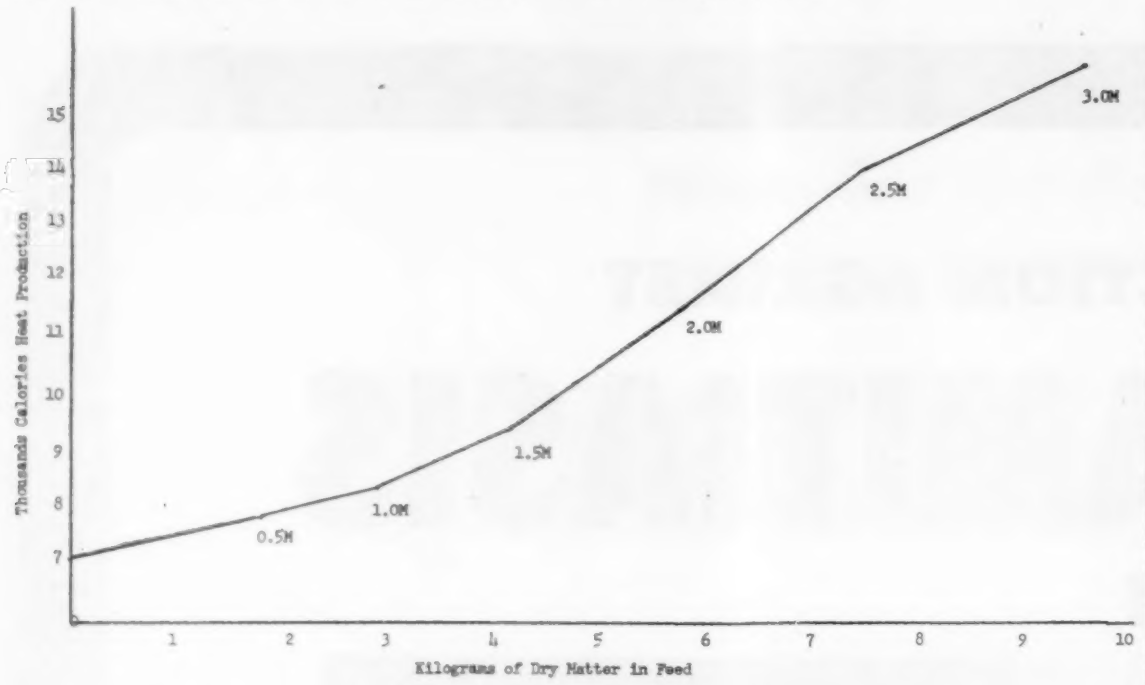
with **THE MERCK MARGIN OF SURETY**

FIGURE 1. Heat production of cattle fed different amounts of feed (Swift, 1958).



practical conditions of livestock feeding.

It would be impossible in this discussion to give a detailed explanation as to why the evaluation of feeds on a net energy basis is completely impracticable. It must be pointed out, however, that for a specified animal fed a specified ration under strictly specified conditions, the net energy system is without any doubt the superior system of nutritive evaluation. Its usefulness, however, is subject to the limitation that the heat increment per unit of feed intake varies with:

(1) The plane of intake. As shown by Figure 1 the net energy value of a ration is not a constant, but its value per unit of feed decreases as intake is increased. Every farmer knows that production rests not only upon the net energy value per pound of ration but on the quantity consumed.

(2) The balance of nutrients in the ration.

(3) Environmental temperature.

(4) Animal activity.

(5) Conditions of management of animals.

Thus, it must be emphasized that net energy is dependent on factors which are completely independent of ration composition and also quantity of feed involved. Net energy, then, is a measure of what a feed might accomplish and not a mere measure of of what it contains. It is of very great interest to note that the workers in the poultry field (Davidson et al. 1957, in England; Hill and Anderson, 1958) have also reported that the productive energy value of a feed or ration is not constant. Metabolizable energy value of the same feeds and rations, on the other hand, were markedly constant over a wide range of conditions.

Thus, it seems that we have set our sights too high when we try to identify feed values in terms of actual production. As pointed out by Swift (1958), seed companies only guarantee the purity of their product; with some guaranteeing percent germination under closely controlled conditions. They do not guarantee their product in terms of yield of product per acre. Fertilizer companies do not guarante their products in terms of crop yield, but only in terms of what is actually contained in the material offered for sale.

Corresponding to the guarantees of seed men and fertilizer dealers would be the guarantees of feeds on the basis of their digestible and metabolizable energy contents. To project these into final results by guaranteeing so much net energy, productive energy or starch equivalents per unit of feed by pretending that these small fractions of the feed energy are not affected by amount of feed consumed, activity of animal, environmental temperature, whether the animal is scrub or a high producing one, and all management practices, bespeaks of hypocrisy. This is precisely what is being done when feed manufacturers or their representatives characterize and sell their feeds on the basis of their net or productive energy contents. In this light, it is recommended that we limit the evaluation of feeds or rations to those measures which characterize the feed only. At the present time this would mean metabolizable energy for poultry and digestible or metabolizable energy for all other livestock.

v v

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SCRAPIE DISEASE COMMITTEE

SAN FRANCISCO—Dr. Arthur G. Boyd, assistant director, California Department of Agriculture, has been appointed by the U.S. Department of Agriculture to a seven-member group to make a comprehensive study of scrapie disease of sheep.

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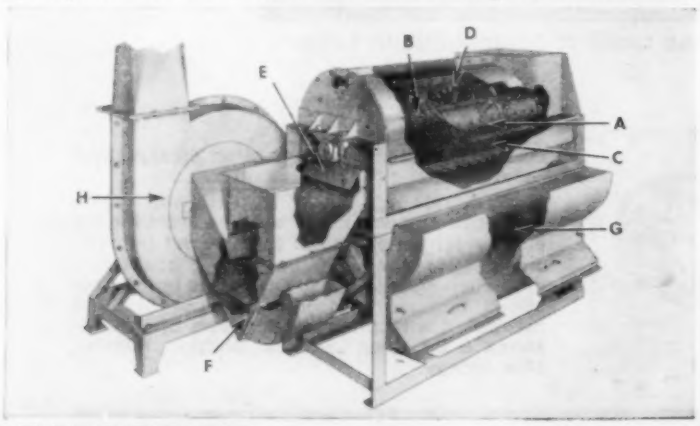

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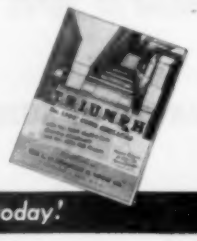

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CENTRAL SOYA PROMOTIONS—Four promotions in the grain merchandising division of Central Soya Co., Inc., Ft. Wayne, Ind., were announced recently. Robert L. Bumgerdner, manager of the Chattanooga (Tenn.) grain operations, has been assigned to the grain trading staff of the Ft. Wayne office. Harold W. Boyd, of the Chattanooga office, will become manager of the Chattanooga operations. Charles Schoocraft, resident manager of the Central Grain Co., Guntersville, Ala., will become assistant manager of the Chattanooga grain operation. Carter Hulsey of the Guntersville staff will become resident manager of the Central Grain Co.

Farmers Said to Hold Key to Integration

COLLEGE PARK, MD.—The farmer who produces the feed holds the key to the future extent of integration and contract farming in the opinion of Dr. James R. Ferguson, University of Maryland extension livestock specialist.

He feels that farmers should consider producing baby pigs for the pig parlor operators, or feeder calves for the large scale feeders rather than trying to compete with feed companies and contract feeders.

"While the contract feeders may have certain advantages, the farmer should keep in mind that he has definite advantages," Dr. Ferguson said. He listed the farmers' advantages as follows:

"1. Lower costs of home-grown grains and feeds may off-set the advantage of greater labor efficiency of the large scale operator.

"2. Year-around employment for the farm family. A balanced labor program with crops and livestock may also off-set the advantage of increased labor efficiency of the big operator.

"3. Increased efficiency in production because of fewer outbreaks of disease and infestation of parasites that may be an inherent part of the large-scale livestock program."

Dr. Ferguson said that through good judgment, sound business sense and year-around employment, the family farmer can and should utilize home-grown feeds on the farm, eliminating the high cost of transportation and, at the same time, return to his farm the fertilizing portions of these feeds. "He can also utilize cash crop by-products, field crop residues and untillable land efficiently through his livestock enterprise," the livestock specialist declared.

He said that producer-operated cooperative sales or pools in Maryland and in other states have proved an adequate and reliable outlet for the producer, and added that cooperative farmer action is the family farmer's major means of meeting the competition of feeding plans that are financed and managed by off-the-farm agencies.

He also mentioned that because of the inherent differences in individuals in ability to produce efficiently, "the family farm has and will continue to be the stronghold of selecting, testing and producing superior livestock."

FEED MAN RETIRES

QUINCY, ILL.—Herbert Kreitemeyer, executive vice president of the Illinois Manufacturing Co., Quincy, manufacturer of minerals and supplies for livestock and poultry, retired recently after 36 years with the firm. He was honored Nov. 15 at a dinner attended by approximately 50 employees. The date marked the end of his 36th year with the firm.

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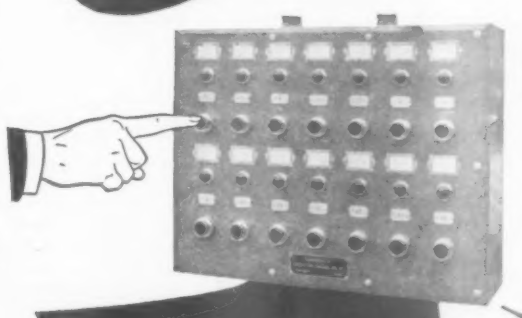

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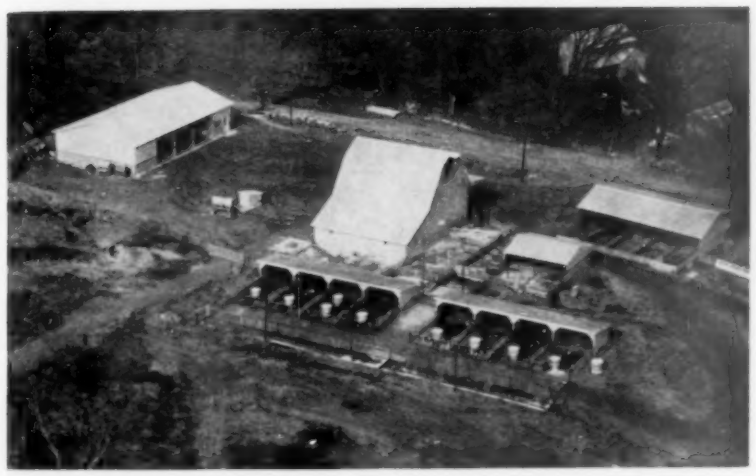


HALES & HUNTER HOG FARM—This building area is the center of operations at Prime Pork Farms, Inc., new Hales & Hunter research farm to be devoted entirely to hog research. The finishing floor, holding area, farrowing barn, tempering barn, warehouse and office are shown here. This arrangement makes possible easy supervision and effective labor use, officials said.

Hales & Hunter Announces New Research Farm

CHICAGO — A research farm designed exclusively for the production of hogs has been announced by Hales & Hunter Co., Chicago, manufacturer of Red Comb-Pioneer Feeds.

The 120-acre farm, purchased in late 1957, is located at Tiskilwa, Ill. It is known as Prime Pork Farms, Inc., and it will supplement the Red Comb-Pioneer research center located at Riverdale, Ill., the announcement said.

A number of new buildings and facilities for research have been added to the farm to support a program of hog research divided into two areas: breeding herd research and market hog research. Under each of these major categories will be seven areas of study.

Under breeding herd research will be studies in (1) pre-starter feeds, (2) growing rations, (3) sow rations, (4) stress feeding, (5) roughage, (6) feeding programs, (7) management. The market hog study areas are (1) growing rations, (2) finishing feeds, (3) systems of feeding, (4) stress feeding, (5) feeder pig management, (6) feed additives, (7) systems of management.

Complete records are kept for all ages and classes of animals. Data on feed consumption, daily gains, litter size and litter weights are some of the records kept to evaluate the program.

The general production pattern is that of producing feeder pigs for sale, and, also, breeding stock meat-type boars for sale to commercial hog farmers. Around 1,290 animals are used in the breeding herd and market hog research groups. The farm units will have 180 foundation sows, 180 replacement gilts, 10 herd sires, 100 replacement boars, 500 market pigs and 320 market research hogs.

Called for in the production schedule are nine farrowings a year, with a farrowing every 42 days. As many as 420 sows will farrow each year.

Feeding

At present, four different rations are being evaluated on the sow herd, namely: (1) breeding rations to increase the number of fertilized ova and lower pre-natal death; (2) gestation rations, to establish different production costs and the relative effects of different rations upon litter size and pig livability; (3) pre-farrowing rations, to evaluate different rations and their use and application in handling the sow prior to farrowing; and (4) farrowing rations to evaluate their effect on the sow's milk production.

All mature animals are hand-fed, thus obtaining controlled intake of feeds. Young growing animals or market hogs are fed free-choice. In addition to the over-all testing program of feeds and management, different hog equipment is also being evaluated as to its use and application in commercial hog production.

Four main areas have been developed at the farm for handling the hogs. They are: breeding area, farrowing area, growing lot area and the feeding floor area.

In charge of the new research program are Richard J. Karrasch, director of research; K. Max Isaacs, Pioneer Feeds livestock nutritionist; Ron C. Tom, manager, hog and beef feeds department, and W. C. Keener, farm manager.

Plans Outlined For Virginia Feed-Nutrition Conference

RICHMOND, VA. — The program of the Virginia Feed-Nutrition Conference at Roanoke Feb. 24-25 will be slanted heavily toward the demands of "Mrs. Consumer," according to co-chairmen Paul M. Reaves, Virginia Polytechnic Institute, and W. G. Ritchie, Petersburg, Va.

The occasion marks the second year in which the conference has held its annual meeting in combination with the feed trade group for mutual benefits of information about common and related problems.

The nutrition conference, until last year, had been conducted largely under the sponsorship of Virginia Polytechnic Institute, and will still draw heavily upon VPI personnel. The feed association had held its annual convention in conjunction with its affiliate parent trade organization, the Virginia State Poultry Federation.

Authorities on consumer preferences, according to tentative plans now under way, will address the opening of each of the four sections of the conference — poultry, swine, dairy cattle and beef cattle and sheep.

Following in logical order, the remaining portions of each section will be aimed at means of adjusting feed and nutrition practices to meet consumer demands. Also planned are reports on research findings at VPI and other colleges and universities conducting study projects in animal feeds and nutrition.

Workshop sessions for each of the four segments of the conference will allow ample opportunity for exchange and clarification of views. Tentative plans call for a question and answer period to follow each speaker's appearance.

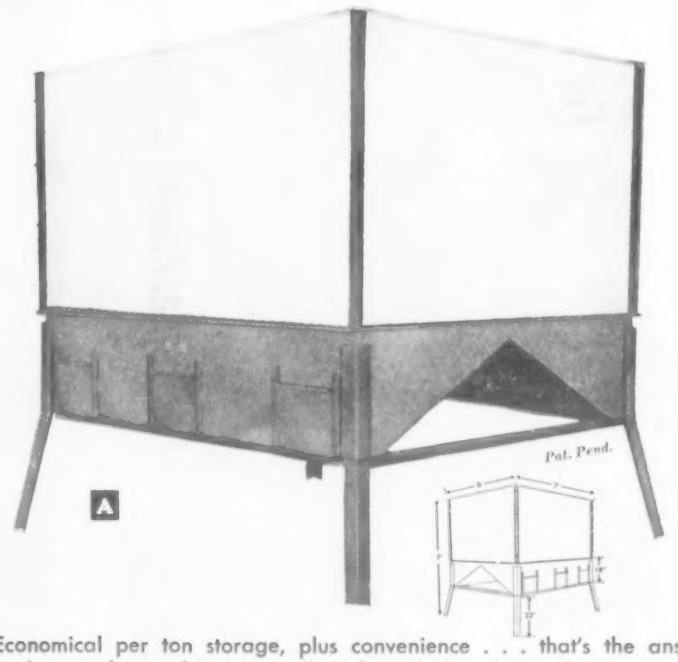
The conference co-chairmen said that a registration fee of $5 will be applied to the cost of supplying registrants with transcripts of each talk, and to help defray general conference expenses.

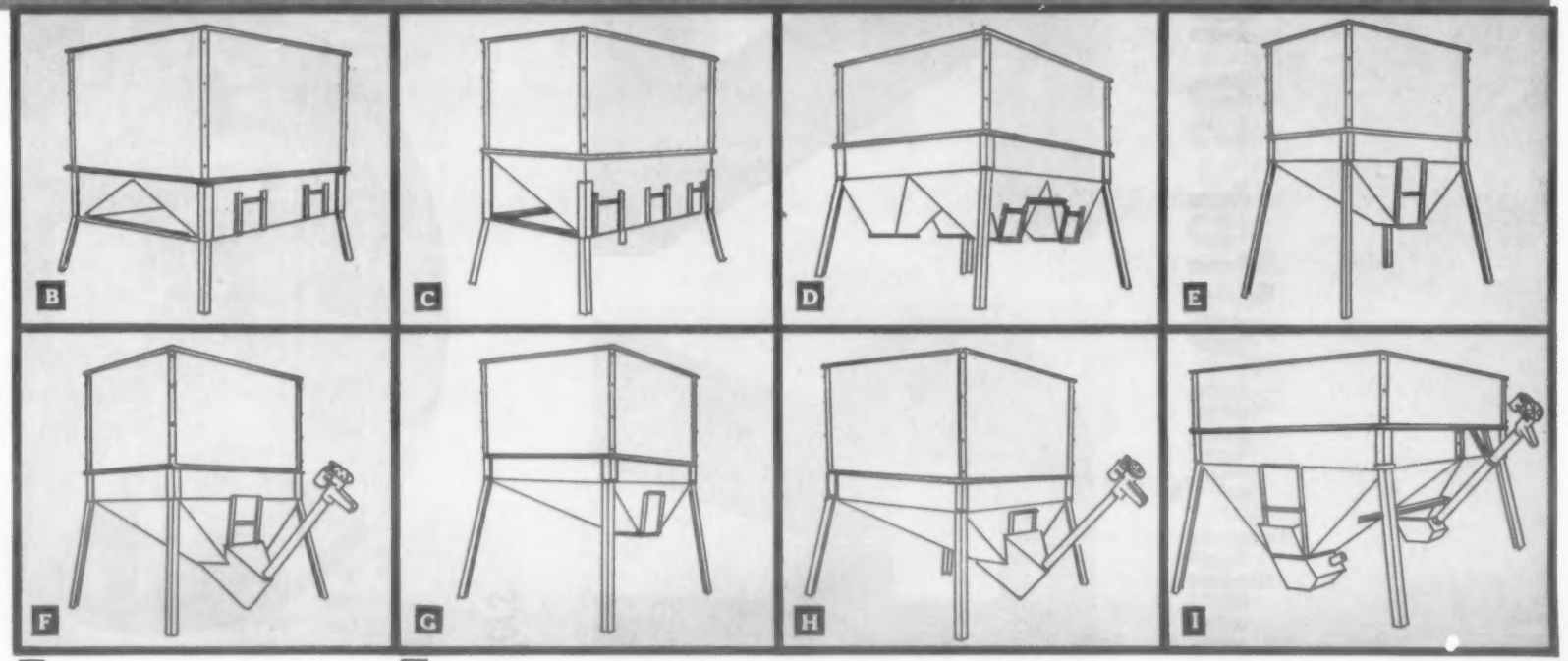
The schedule for the four sections of the conference and other program details is being completed.

Lemanco

QUALITY BULK FEED BINS FOR EVERY FEEDING PURPOSE

DESIGNED TO ACCEPT AIR OR AUGER DELIVERY





Economical per ton storage, plus convenience . . . that's the answer to the popularity of Lemanco all-steel, inside bins for poultry houses and other types of bulk feeding operations.

Lemanco bins are rigidly constructed and built to last. Bases — all welded 14 gauge steel (16 gauge for 6618-42 and 5424-24); sides — 16 gauge galvanized steel; legs — 3" x 3" x ¼" angles on all hopper type bins (2½" x 2½" x ¼" angles on side draw bins). Specially formed corners give extra reinforcement.

A 7618-48-6D 6 door (4 ton) height 7'0"
Three doors on side make for easy cleanout. Especially desirable for pullet and hen feeding.

B 7618-48-4D 4 door (4 ton) height 7'0"
6618-42 4 door (3 ton) height 6'6"
Regular all-purpose 4-door bulk feed bin.

C 7424-42 (2½ ton) height 7'2"
5424-24 (1¼ ton) height 5'6"
Designed for placing against wall or in corners where large capacity not required.

D 7736-36 (4 ton) height 7'6"
Side doors and bottom draw gates permit complete emptying of any type feed including mash of high fat or high fiber content.

E 7540-36G (3¼ ton) height 9'2"
7540-48G (4 ton) height 10'2"
Designed for over automatic feeder where head room is not a problem. If necessary to extend through roof, cover is available or plans furnished to build your own. These bins easily adapted for air delivery.

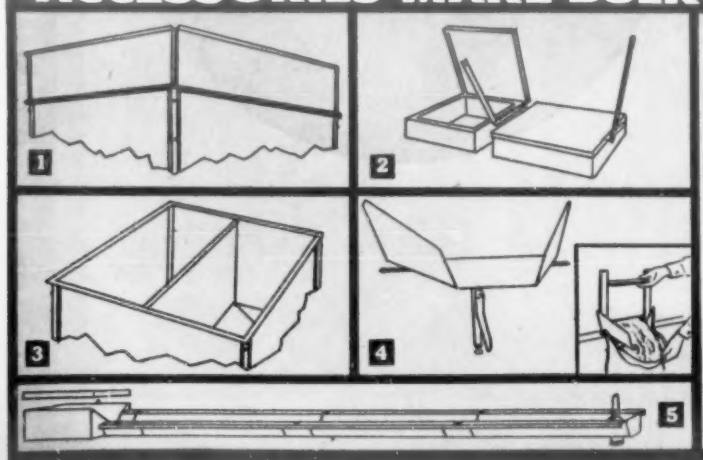
F 7540-36A (3¼ ton) height 8'0"
7540-48A (4 ton) height 9'0"
The large access doors and the pitch of the base make these excellent bins for all feeds.

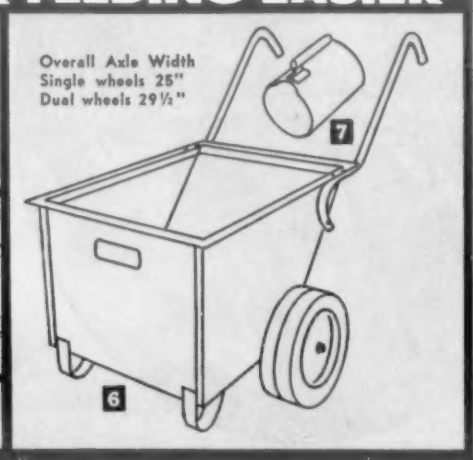
G 7636-36G (4 ton) height 8'6"
7636-48G (5 ton) height 9'6"

H 7636-36A (4 ton) height 7'0"
7636-48A (5 ton) height 8'0"
These models, (illustrated G and H), are designed for locations where head room is limited but large capacity required. Bins are recommended for pellets and crumbles. Due to shallower pitch they are not recommended for mash.

I 10740-24 (5¼ ton) height 6'3"
10740-36 (6½ ton) height 7'3"
10740-48 (8 ton) height 8'3"
Recognizing the trend toward larger capacity houses and mechanical feeding, these bins give inside storage up to 8 tons of feed. When one compartment is emptied auger is easily switched to the other. Two augers available if required.

ACCESSORIES MAKE BULK FEEDING EASIER





1 Bin extension for a Lemanco 4-ton 7618-48 and 7540-48 bins which give an extra ton of capacity when, or if, needed.

2 The Lemanco Roof Door has a heavy wood base making mounting to any type roof extremely simple. Wire fastened to upright lever permits opening and closing from the truck or ground.

3 Factory built partition to fit a Lemanco standard 4-ton 7618-48 bin designed for those who need a partitioned bin in their feeding program. Pre-punched holes facilitate installation.

4 Picking up feed is a simple chore for one man with the Lemanco Bag-Out, designed for Lemanco bins—a device designed to fit a particular need of the broiler industry.

5 Continuous Easy-to-Clean watering trough fabricated in 10 foot lengths so trough can be sectioned in multiples of 10 feet with smaller joints of 4 feet and 2 feet. Special leak-proof bolted joints, neoprene sealed, no welding necessary. Trouble-free valve and large drainage pipe prevent overflow into house.

6 The Lemanco Feed Barrow, especially designed for the poultry industry, makes the feeding operation easier for any member of the family, young or old. Built of heavy gauge steel and chrome plated handles, it is so balanced that it cannot tip over and spill feed. Carrying capacity 165 pounds. Oilite bearings and dual or single sem.-pneumatic wheels. Dual wheels recommended for areas where soft litter used.

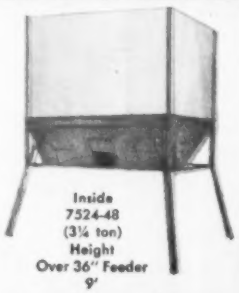
7 Companion piece to the Lemanco Feed Barrow, the Feed Tube Scoop, 9" x 6", weight one pound, designed primarily for filling tube feeders without spillage. Vent holes in bottom permit filling and emptying of scoop without sloughing of feed.

PIG FEEDER BINS

For Inside or Outside Use

- Encourage expanded production without increasing labor.
- Permit quantity buying and bulk storage over feeders where needed.
- Protect feed from flies, moisture, rodents and waste.
- Control supply of fresh feed to feeders.

Outside
7524-48
(3¼ ton)
with Lemanco
Roof Door



Inside
7524-48
(3¼ ton)
Height
Over 36" Feeder
9'

These bins are of the same quality construction as those designed for the poultry industry.

When ordering state height of feeder to be used — this determines length of legs.

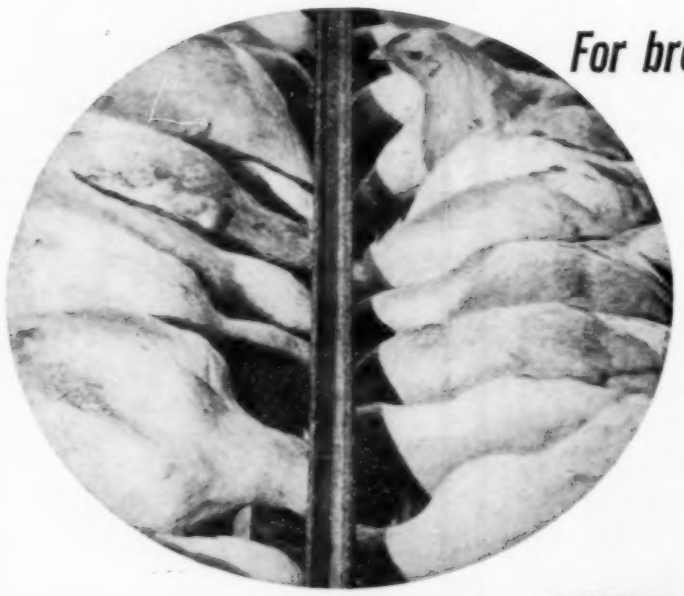
Telephone or write today for prices and further information.

LEACH MANUFACTURING COMPANY GADSDEN, ALABAMA P. O. Box 1010 — Tel. Liberty 7-5472

CYANAMID

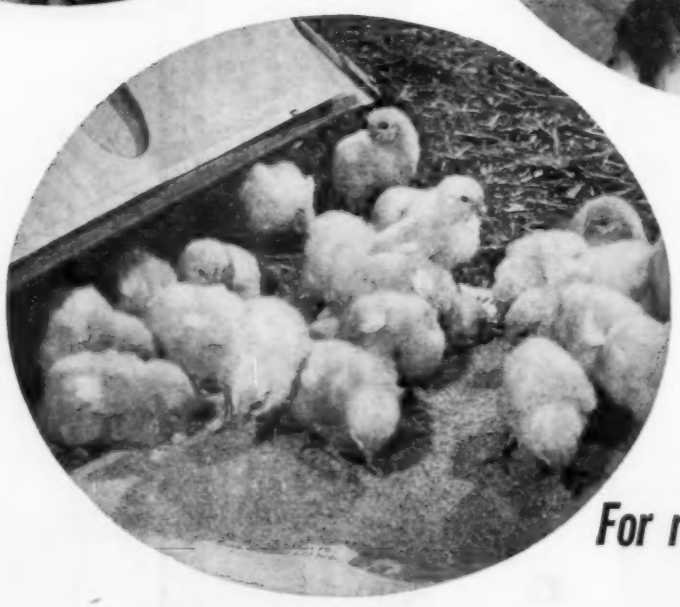
Never before could you offer so much

ARZ



For broilers

For layers



For replacement chicks

ANIMAL FEED DEPARTMENT • AGRICULTURAL DIVISION

coccidiosis protection at so little cost!

ENE*

PROVED COCCIDIOSTAT FOR BROILERS, REPLACEMENT CHICKS, LAYING HENS

Here's the first truly multi-purpose coccidiostat! When your feeds contain ARZENE, you provide poultry growers with today's most all-inclusive aid in the prevention of coccidiosis in broilers, replacement chicks and laying hens.

ARZENE costs *you* considerably less than any other coccidiostat. Never before could you offer *so much* coccidiosis protection at *so little cost.*

ARZENE meets all the requirements named by leading poultry scientists as essential to an effective coccidiostat.

Controlled laboratory and field experiments have shown that ARZENE helps prevent coccidiosis outbreaks. It minimizes mortality, allows immunity to develop and improves growth and feed efficiency.

ARZENE has been fed as the only anti-coccidial agent to 10,000,000 broilers and 5,000,000 replacement birds throughout their entire lives. Coccidiosis was effectively controlled and feed efficiency was improved in both broilers and replacement flocks. Weight gains and pigmentation were notably improved in broilers.

Strengthen the sales punch for your feeds by letting your customers in on this economy program for effective control of coccidiosis. Incorporate ARZENE! Write for literature describing mixing directions, labeling, etc.

Animal Feed Department • Agricultural Division • American Cyanamid Company, N.Y. 20, N.Y.

• AMERICAN CYANAMID COMPANY • NEW YORK 20, N. Y.

Cash in

an big, steady demand for

PILOT BRAND OYSTER SHELL

PILOT OYSTER SHELL

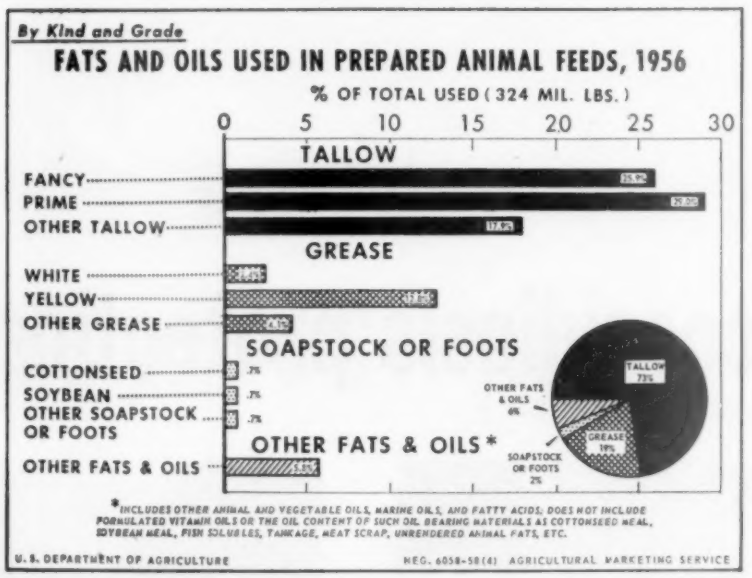
You can always count on fast turnovers and good profits when you stock and display PILOT BRAND Oyster Shell. That's because poultrymen everywhere have learned that hens produce more eggs with stronger shells when PILOT BRAND Oyster Shell is in the hoppers.

This year 'round, nation-wide demand—constantly stimulated by advertising in leading farm and poultry journals and on 70 radio stations—makes your selling job easier. It pays to push PILOT BRAND—the largest selling eggshell material in the world.

Order from your distributor or write to us

Oyster Shell Products Company
Mobile, Alabama

PILOT BRAND OYSTER SHELL FOR POULTRY


By Kind and Grade
FATS AND OILS USED IN PREPARED ANIMAL FEEDS, 1956
% OF TOTAL USED (324 MIL. LBS.)
0 5 10 15 20 25 30
TALLOW
FANCY
PRIME
OTHER TALLOW
GREASE
WHITE
YELLOW
OTHER GREASE
SOAPSTOCK OR FOOTS
COTTONSEED .7%
SOYBEAN .7%
OTHER SOAPSTOCK OR FOOTS .7%
OTHER FATS & OILS *
OTHER FATS & OILS
TALLOW 73%
GREASE 19%
SOAPSTOCK OR FOOTS 2%
*INCLUDES OTHER ANIMAL AND VEGETABLE OILS, MARINE OILS, AND FATTY ACIDS; DOES NOT INCLUDE FORMULATED VITAMIN OILS OR THE OIL CONTENT OF SUCH OIL BEARING MATERIALS AS COTTONSEED MEAL, SOYBEAN MEAL, FISH SOLUBLES, TANKAGE, MEAT SCRAP, UNRENDERED ANIMAL FATS, ETC.
U. S. DEPARTMENT OF AGRICULTURE
NEG. 6058-58(4) AGRICULTURAL MARKETING SERVICE

INCREASED USE OF FAT—This graph shows the results of a survey taken by the U.S. Department of Agriculture in 1956. In 1956, the feed industry used about 18% of all the inedible tallow and grease consumed in the U.S. Some 324 million tons were used in feeds in 1956, and about 300 million tons of this amount were tallow and grease. Producers of inedible fats did not have this outlet prior to 1952, because mixed feeds containing fat were practically non-existent before that year, USDA noted.

Wisconsin Duck Farm To Expand Production To 500,000 Birds

FRANKSVILLE, WIS.—The Cooper-Dixon Duck Farm near here has announced that it is completing an expansion program, including a $30,000 processing plant, which will boost its annual capacity from 300,000 to upward of 500,000 birds.

According to its operators, the farm is the only large commercial duck operation in the state. It is the biggest in the Midwest and among the largest in the country.

The farm produces ducks on a year-around schedule. Eight weeks from the time the ducklings are started through the pens they are processed. All ducks at the farm are of the Pekin breed, and the operators say the duck is a good natured bird which is far less of a psychological problem than a turkey.

About one third of the farm's supply of ducks is purchased from a supplier in Michigan. The remainder are hatched in incubators on the farm which handle a total of 18,000 eggs at a time. About 5,000 eggs are set weekly.

Eggs come from a breeding flock of 1,600 females and 400 males, which brings a hatch of about 80%. The hens start laying at six months, turn out an average of 160 eggs in the next year and are then slaughtered and marketed as breeder ducks.

Ducklings are started in pens of 75 each, in houses which contain 3,500. They are fed a pelleted starter ration. The ducklings move into another house the second week, while another group is started. They are kept in flocks of 800, and are held in five different pens during their growing period. The three-week finishing period is spent in one pen.

The farm said scrupulous sanitation has kept it disease free.

FEEDSTUFFS
LEADER IN THE FIELD

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

INDUSTRY DEMANDED IT-- B&L DELIVERED IT

STANDARD EQUIPMENT ON THE B&L FORMULA FEED BLENDER
THE FIRST PRACTICAL BALED HAY GRINDER
GRINDS ROUND & SQUARE BALES WITH EQUAL EASE

- GRINDS WHOLE BALES WITH NO EFFORT
- LARGE FEED TABLE—30" ABOVE GROUND
- POWER DRIVEN GATHERING FINGERS
- VARI-SPEED FEED DRIVE
- COMPLETELY ENCLOSED WHEN NOT IN USE
- NO EXTRA POWER NEEDED
- UTILIZES FULLEST EQUIPMENT EFFICIENCY

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B&L BARNARD & LEAS Manufacturing Company INC.
1200-34 Twelfth St., S.W. Cedar Rapids, Iowa

HONEGGER DEALERS PROFIT from the BIG FRANCHISE

BIG 4

Franchises available in some areas
WRITE, WIRE or PHONE
Honeggers' & Co., Inc.
Fairbury, Illinois

FEED
CHIX
FARM BUILDINGS
EQUIPMENT

Mr. C. J. Hennick proved to himself the value of feeding Hygromix feeds. "I think these pigs have done real well," he says.

"I'll never worry again about worms"

"Hygromix® does the job . . . I'm sure about that!"

by Eugene S. Hahnel

C. J. Hennick and his son, John, raise about 140 pigs a year. Hygromix sounded like the answer to their worm problem, but they wanted to make sure it worked.

They put their pigs on Hygromix feeds as soon as they would eat. At about 90 pounds, they test-wormed them to see if Hygromix was doing the job. "I kept close watch of them," says Mr. Hennick, Sr., "and couldn't find a worm. With our other pigs we used to find ten to twelve worms per pig. Hygromix does the job . . . I'm sure about that!"

"Those worms just never got started," Mr. Hennick continues. "I used to have to wait until 8 or 10 weeks to worm, and damage had been pretty well done by then."

Until the discovery of Hygromix, worm damage became well-established in the pig before worms could be attacked. Worm control with Hygromix feed starts with the baby pig. Control continues throughout the critical growing period when most of the damage takes place. Hygromix accomplishes this by killing the young worms as they enter the intestinal tract.

Wilford "Bill" Kolpin (right), feed manufacturer's representative, is an interested listener as Mr. Hennick describes how Hygromix-fortified feed controlled the worm problem in his herd. "I'll never worry about worms again so long as I use feed with Hygromix" was Hennick's conclusion.

HYGROMIX®

(S. hygroscopicus fermentation products, Lilly*)*

Lilly

MAKERS OF STILBOSOL® (diethylstilbestrol premix, Lilly)
Procaine-Penicillin-G • Vitamin B_{12}

ELI LILLY AND COMPANY, AGRICULTURAL AND INDUSTRIAL PRODUCTS DIVISION, INDIANAPOLIS 6, INDIANA

JOHN DEERE UREA

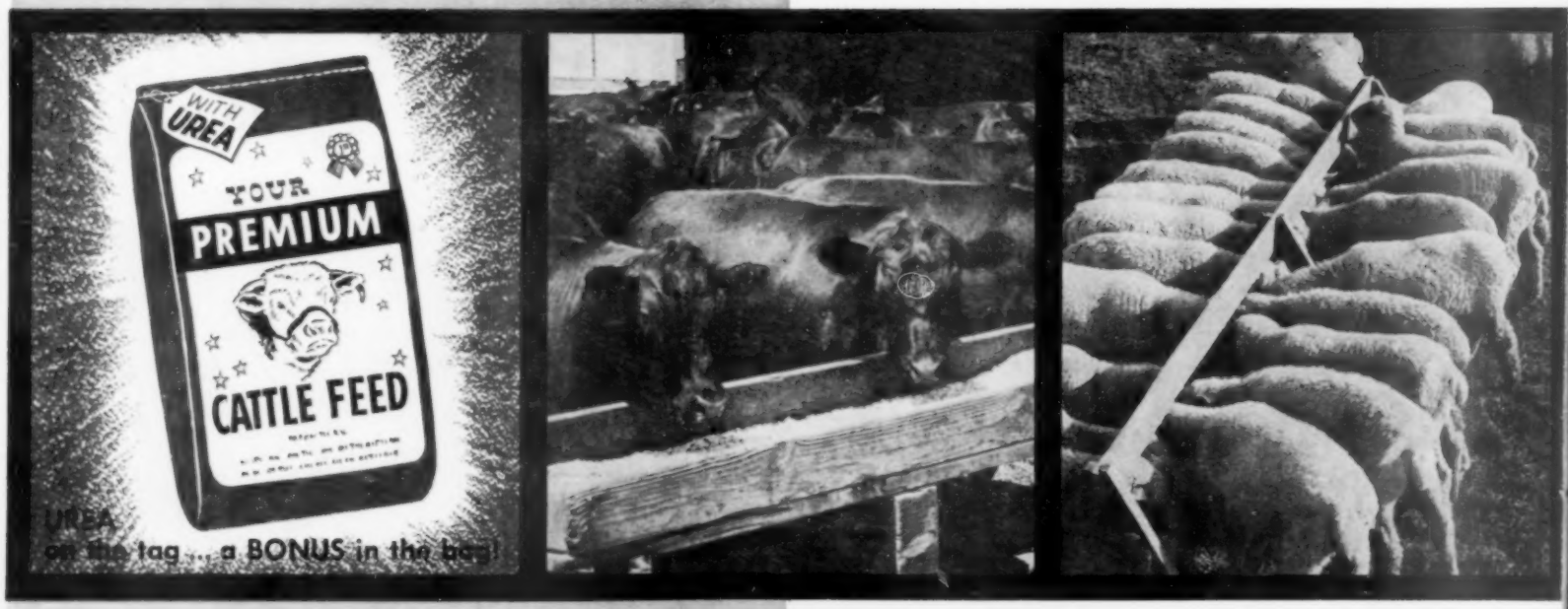
JOHN DEERE UREA FEED COMPOUND ..... **+ BONUS** .....

Protein Source

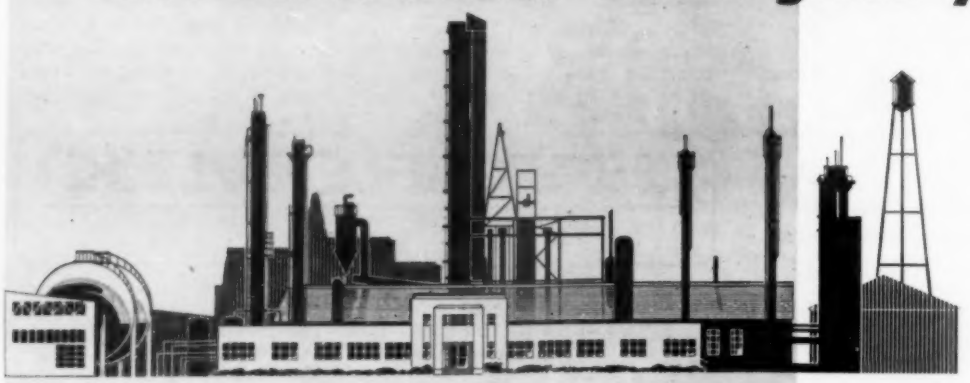
For extra feeding value . . . use *John Deere Urea* . . . the ideal source of protein for profitable, efficient feeds. Urea on the tag means added quality and profit in the bag . . . assures you of customer satisfaction. Improve both your premium and economy feeds with highest quality urea . . . John Deere Urea.

Better use of Roughage

Use John Deere Urea in your feeds to help ruminants make the best possible use of roughages. This gives your feeds a special advantage . . . your customers will be able to more fully utilize their available straw, weathered grass hay, corn stover or earless corn silage. This, of course, is because urea is so well suited to the feeding and multiplying of the rumen "bugs" . . . essential for good roughage digestion.



"And John Deere UREA gives you a special bonus . .



You know you can depend
on the quality
of John Deere products!

gives You a 3 way BONUS

+ BONUS

Concentrated Form

Because it is equivalent to 262% protein, *John Deere Urea* saves space in your feed bag for adding more energy, vitamins and minerals. You also save up to six times the cost of storage, handling and freight when you use John Deere Urea in your feeds.

+ BONUS

Economy

***John Deere Urea* is a low cost source of protein. Its high concentration also means extra low cost freight, handling and storage. Take advantage of these big savings; and, at the same time, you'll be getting the finest quality source of protein modern scientific ingenuity can produce.**

.. in quality and service."

Like all famous John Deere products, John Deere Urea Feed Compound is of unsurpassed quality . . . a product of one of the world's most modern urea plants. You can depend on getting it in a uniform, free flowing condition every time . . . ideal for modern feed mixing.

John Deere facilities also make it possible to give you *fast, dependable service* on any order. Call or write today. Free samples and literature available on request.

JOHN DEERE

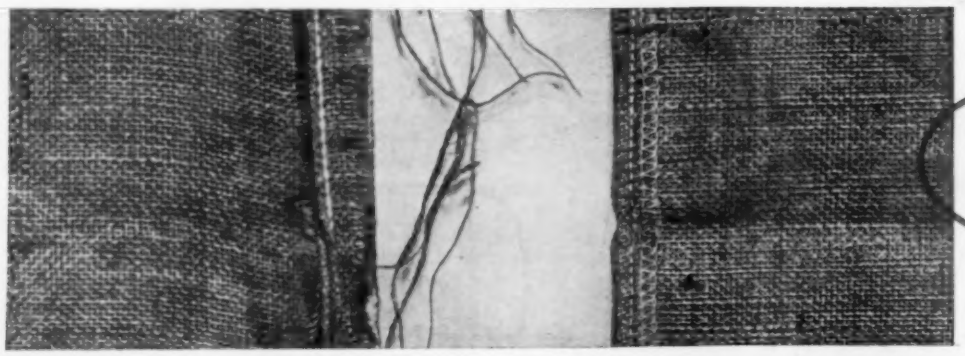
Grand River Chemical Division of

DEERE & COMPANY

PRYOR, OKLAHOMA • PHONE VALLEY 5-2000

Wirthmore Stores

Almost everybody who brings problems to Bemis (where flexible packaging ideas are born) likes the flexible solutions that Bemis creates out of 100-year experience, skill and just plain flexible imagination.



LOOKS ARE FINE . . . BUT MONEY'S FINER! You get both, though, when you package your feed in Bemis "Edge-Lock Seam" Burlap Bags. "Edge-Lock" ends raveling, adds several extra trips to each bag, cuts your bag cost. A neater, better selling package, too. Actually a MUST for a successful return bag program. P. S.—No loose yarns to get in the feed. Your customers love this!

Bemis

Bemis may already be making the better package you need. Call, write, or ask your Bemis man.

Dr. Raymond Seven

William J. Crist

Canadian Subsidiary Announced by Panogen

RINGWOOD, ILL.—Panogen Co., Ringwood, a division of Morton Chemical Co., has announced that Panogen products are being distributed in Canada by Panogen of Canada, Ltd., Winnipeg, a wholly-owned subsidiary of Morton Chemical. The announcement was made by Petrus Hellman, president and general manager of Panogen.

William J. Crist has been appointed manager of Canadian sales, and will be assisted by two field representatives, Lionel Hart, Winnipeg, and James Taylor, Lethbridge, Alberta. Mr. Crist will be concerned with the distribution of Panogen and Drinox liquid seed treatments, Larvacide fumigants and other products and seed treating equipment manufactured by Panogen. He is a graduate of the University of Minnesota.

Panogen has also announced that Dr. Raymond P. Seven, former director of agricultural research at the Morton research laboratory, Woodstock, Ill., has been appointed technical director of Panogen. In his new capacity, Dr. Seven will be part of sales management, devoting all his time to supervision of product development and field use. He joined the company as a research chemist after receiving his Ph.D. in organic chemistry and biochemistry at the University of Illinois.

Poultryman Questions Egg Premium Profits

AMES, IOWA—Egg producers who receive premium payments from dealers in exchange for buying the dealer's all-mash rations may not be increasing profits at all, says Paul Walther, extension poultryman at Iowa State College.

Mr. Walther mentioned a northeast Iowa producer who was offered a premium of 2¢ doz. on his eggs if he would buy a dealer's all-mash ration at $9 more per ton than his regular feed. If the two feeds in this case were equal in feeding value, an average producer would be losing money by accepting the 2¢ premium, Mr. Walther said. A $9 ton feed price increase requires an average egg premium of 2.4¢ doz. for the producer to break even, he said.

At a feed increase of $4.75 ton, a producer must receive a 1¢ premium to break even. The break-even point for a $7.50 ton increase would be a 2¢ premium and an $11.25 price boost per ton would require a 3¢ premium. The premium needed for a $15 ton increase is 4¢, according to Mr. Walther.

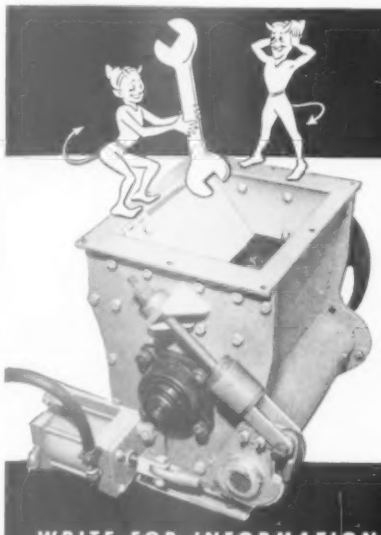
Wirthmore Stores Executive Retires

WALTHAM, MASS.—Robert M. Chase, administrative assistant, Wirthmore Stores, for the past 24 years, was recently honored with a farewell dinner by his associates following his retirement.

Mr. Chase joined the Wirthmore organization in 1926 following the sale of the Chase family grain business to St. Albans Grain Co., of which Chas. M. Cox, Wirthmore founder, was president. In 1928, he was named supervisor of Wirthmore retail stores in New Hampshire and northern Vermont.

Transferred to Wirthmore's retail store headquarters at Greenfield, Mass., in 1934, he became administrative assistant, the position he held until his retirement.

Wirthmore Stores headquarters is now located in the new Waltham, Mass., home office and research center of Wirthmore Feeds, Inc.



Let's Ruin Another
COB CRUSHER

These little demons would certainly wreak havoc with an ordinary crusher, but *not this one!* It's the revolutionary *NEW* Anderson Cob Crusher proven in actual operation.

- DAMAGE PROOF • NO SHEAR PINS
- NO DOWN TIME • CLOG PROOF
- WEAR RESISTANT • HI CAPACITY
- LOW POWER CONSUMPTION
- VARIABLE PRODUCT SIZING

WRITE FOR INFORMATION: The Andersons MAUMEE, OHIO

Fleischmann's F-I-D-Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

SPECIFY
Columbia Calcium
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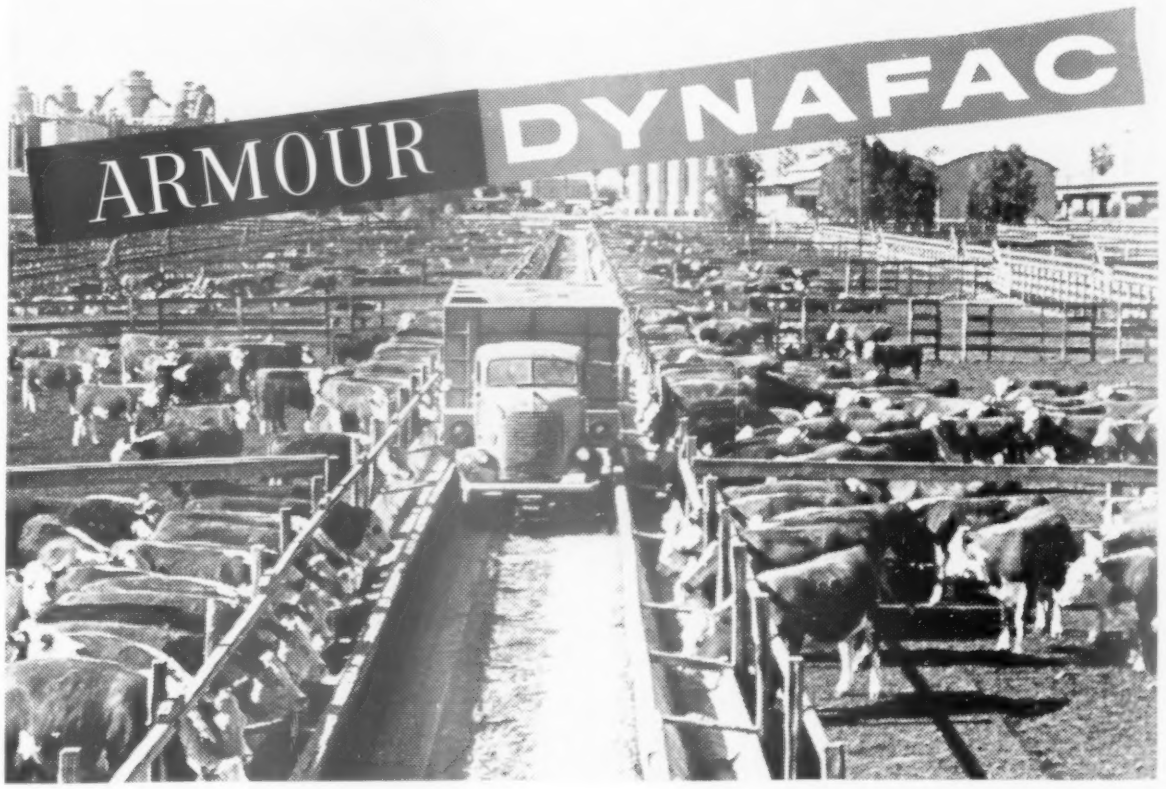

THE WESTERN FEEDLOTS REPORT . . .

"FROM A FASTER START TO A FINER FINISH,

FEED 'EM DYNAFAC!"

"You can almost see them growing . . . those slick hair coats and big briskets are what I like . . . no scours at all since we started feeding Dynafac . . . man, what a difference in feed costs!"

These are the comments being made by feedlot operators all over the West. They have proved it to themselves...and so can you...that feeding Dynafac gives bigger profits. That is because it takes less feed per pound of gain.

Operators report good results using both Dynafac and hormones, either oral or implant. Each additive works in its own way to give you improved efficiency. Not a hormone, Dynafac remains in the intestinal tract to do its job—controls harmful bacteria and fungi without disturbing beneficial organisms in the paunch.

Dynafac costs less than a penny a head per day! Feeders tell us they get their best weight gains and feed conversion feeding this low-cost additive at the 2-gram-per-head-per-day level.

You, too, can make bigger profits by feeding Dynafac. Why not get it into your feed now?

ARMOUR AND COMPANY, CHICAGO, ILLINOIS

Dynafac is distributed nationally for Armour by the Chemical Department, McKesson & Robbins, Inc. Write us for further information.

VISION

in Research

Coronet provides feed manufacturers, livestock and poultry specialists in educational institutions . . . and other nutrition leaders . . . with the latest information on making livestock and poultry production more efficient through established and new uses of phosphorus. **Coronet Research** delivers an increasingly better product . . . year after year!

in Quality Control

ALL the phosphorus in **Coronet** Defluorinated Phosphat and **Coronet** Granular Dikal is biologically available. Bot have been tested and recognized by State Agricultural Ex periment Stations and independent research laboratorie not affiliated with **Coronet**. No phosphorus feed product are subject to more meticulous Quality Control tha those produced by **Coronet**.

50 CORONET . . . 50 YEARS OF RESEARCH . . . QUALITY CONTROL . . . SERVICE

the same time, and Mary flushed. She loved her family to praise her,

ST. LOUIS 1, MO.

Dynafac is distributed nationally for Armour by the Chemical Department, McKesson & Robbins, Inc. Write us for further information.

Coronet begins its Second 50 Years

Today's research and development will provide the accepted products of tomorrow . . . products yet unknown except to the few engaged in Modern Research.

Your future . . . and ours . . . depends upon the *VISION* of men who contribute their resources in order that we may enjoy a better tomorrow.

CORONET . . . observing 50 years of service to American agricultural chemistry looks ahead to an even greater 50 years of accomplishment . . . *in RESEARCH . . . QUALITY CONTROL . . . and SERVICE!*

Look to *CORONET* for the best phosphorus feed supplements modern science can produce TODAY . . . and TOMORROW!

in Service

Two widely separated modern **Coronet** chemical plants assure faster, more dependable service by rail or private truck.

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JOE BROOKS

BY AL P. NELSON

When Joe Brooks came home that evening after a hard but profitable day at the feed mill, he found that Mary, his busy, red-cheeked wife, had prepared his favorite dishes for dinner—roast beef, tossed salad, squash, mashed potatoes, apple pie and coffee.

Joe sniffed as he took off his coat and rubbed his cold hands. "By golly, Mary," he said, "you are a real home-

The Old Folks Should Be Helped

maker, all right, and I like that. That's what every woman ought to be—first of all. You go to your club meetings and take your shopping trips, but you always manage to get good, nourishing meals on the table on time."

"Thanks," Mary smiled. "I'll admit it's a close race sometimes, but I manage."

"And Mommy gives us lunches, too," said Jimmie, Jr. "Or if she's gone to Ladies Aid she leaves a note and tells us what to take from the refrigerator."

"Yes, I think Mother gets an A, don't you, boys?"

Both boys yelled "Yes" at about the same time, and Mary flushed. She loved her family to praise her, and that made her work all the more devotedly.

"Now sit down and eat, family," she called. "I've got something to tell, Joe, too."

"I hope it's a business idea," Joe said hopefully. "I never seem to get overstocked on them."

"I'll let you be the judge," smiled Mary, dishing out the hot mashed potatoes on every plate.

After the first round of roast beef and mashed potatoes and gravy had been eaten, and Joe and the twins asked for a second helping, Mary said, "We eat very well, don't we, Joe?"

"Yes, we do. We should be very grateful for that."

"But there are some people right here in Hansen's Creek who don't eat very well. In fact, many of them are undernourished."

Joe looked surprised. "Oh, how's that?"

"I mean the people in the old people's homes around here, Joe. We were talking about it at Ladies Aid today."

Joe was thoughtful. "I thought the two churches here who support Old People's Homes were doing a good job, Mary. Those two church homes for old people and the two private homes should be adequate for this area."

Mary smiled sadly. "That's what everyone thinks. But costs are going up, and people in those homes can't pay the higher rates that the homes need for top nutrition. So they have to serve below par meals many days of the week."

"Well," asked Joe, "don't the churches help?"

"Oh, they do now and then but what is needed is a concerted drive to get more food, Joe. The churches don't like to stage special drives like that. They have so many other demands on their congregations, they hesitate to initiate a new one."

"So—"

Mary took a sip of coffee. "Joe, there is more food in this county than the population can eat. Right?"

"I suppose so."

Food Collection Day

Mary nodded thoughtfully. "Now, Joe, if you were to advertise that you were putting on a Food Collection Day for old people's homes in the area, and would invite farmers and others to bring in surplus foods, that might do the trick."

Joe was so surprised he almost dropped his fork. "I should do that?"

Mary nodded. "Yes, I have it all thought out. Just about every farmer would have something he could donate—canned food, jam, canned chickens or ham, some salt bacon, squash, pumpkins, a sack of potatoes, or something like that. We'd have them bring it in on a certain day and we'd stack it in the center of the salesroom. I believe the spirit of the thing would catch on and folks would respond. Joe, all that is needed is

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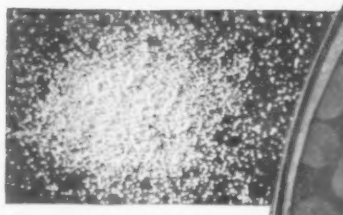
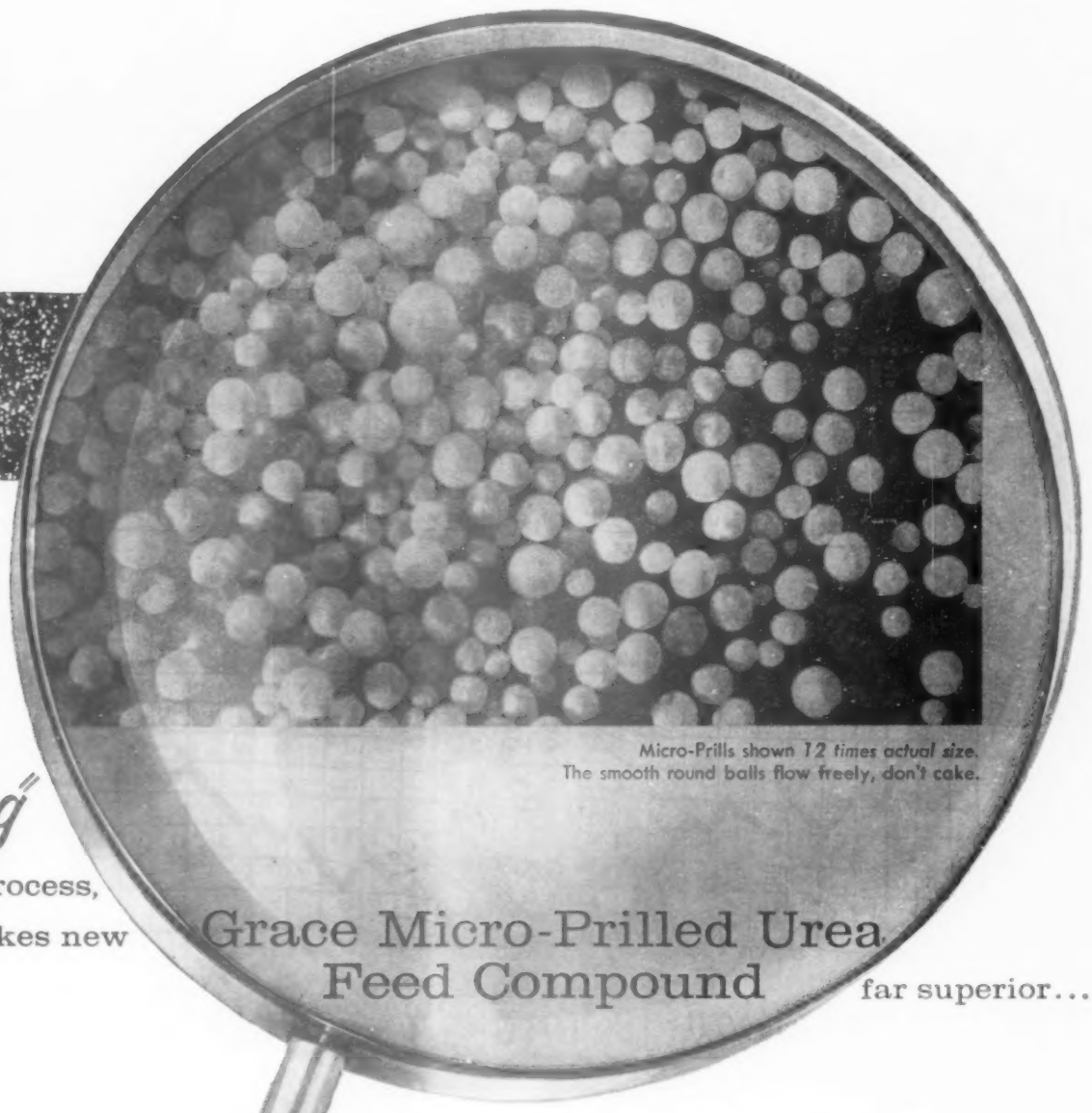


Grace Micro-Prilled
Urea Feed Compound
shown *Actual Size*.



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an exclusive Grace Process,
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$60 A DOZEN—Mr. and Mrs. Wayne Conrad (above), Timken, Kansas, received $5 an egg for a dozen eggs at the 24th annual Kansas Poultry Exposition held recently in Wichita. Purchasers were Honeggers' & Co., Inc., Fairbury, Ill., and Naturich Feed Mills, Abilene, Kansas. This is a new high price for the egg division of the Kansas poultry show. The eggs came from the Conrads' flock of Honegger layers.

someone like you to get the thing started. And the food could be distributed between the two church homes and the two private homes." Mary's voice was pleading.

Joe chewed thoughtfully on a piece of delicious apple pie. "You mean if the homes got all this extra food, they could feed those old people much better for a long time, without charging them higher rates."

"Exactly," Mary said eagerly. "And many of those inmates are old farmers and their wives."

"I know that," Joe said. "Say, maybe this could be an annual affair. And it wouldn't cost much. But I wouldn't want to make it commercial in any way. I wouldn't want to trade on the misery and needs of old people."

"I know that," Mary said. "But you couldn't help it if your store and mill traffic increased during that Food Collection Day. And if some farmers who brought food also wanted their grain ground and mixed with concentrate, or wanted pellet feed or something else, you wouldn't be blamed for accepting the business, would you?"

"No, I suppose not."

"And if the newspaper publisher came over and took pictures of that food collection and wrote a story about it, no one could accuse you of capitalizing on the event, could they?"

"Mary, are you promoting this collection as a business building idea or as a humanitarian gesture? I want to know."

Mary looked directly into her husband's eyes. "I'm doing it because my heart tells me it needs to be done by someone, Joe. But whether you or some other merchant does it, I believe that merchant is entitled to whatever extra business flows his way because of it. To put on that Food Collection Day will require more advertising by the merchant, sacrifice of much display space in a showroom, and things like that. I believe that extra work should be compensated for in some way."

Joe's Offer

"Well said," smiled Joe. "I feel just like you do. I'll put on this Food Collection Day if you help me. And I will offer every farmer who brings an item of food, a big bowl of white bean soup, and a cup of coffee."

"And I will bake doughnuts night and day to hand out, too," Mary said.

"Gee, what can we do?" chorused the twins. "We wanta help the old people, too."

"That's the spirit," Joe said. "If everyone responds like that I think we'll collect a lot of food for those homes. You boys can come down after school and carry out all the used paper coffee cups and paper plates into the garbage burner and maybe sweep up a little. Gosh, I hope we get a couple of tons of food."

"I feel sure we will," Mary said, "and let's invite a representative of each of the old people's homes to come on that day and hand out folders and answer questions on what individuals can do to help make these homes function better."

"I agree," Joe said eagerly, "and I'll ask Grandpa Hodgkins to come on duty that day. He'll keep folks happy and laughing and cooperating all day. You wait and see."

RECORD SOYBEAN CRUSH IN OCTOBER

WASHINGTON—A soybean crush of 33,470,000 bu. during the month of October set a new record, according to a recent report from the Census Bureau. The crush was a sharp 34% increase over September, 1958, when 25,065,000 bu. were crushed, and also an increase over the 28,083,000 bu. in October, 1957. The previous record was 32,208,000 bu. crushed in May, 1958. Cottonseed crushed during October was 712,407 tons, up more than 100% over the 306,751 tons in September and sharply above the crush of 645,936 tons during October, 1957. Flaxseed crushing during October, 1958, was 71,977 tons, about the same as the September crush of 71,655 tons.

Nutrena Provides Fund For Straube Memorial

KANSAS CITY — The Kaw Valley Heart Assn. has announced the receipt of a gift from Nutrena Mills, Inc., Kansas City, to establish a research memorial to Oscar Straube, president of Pay Way Feed Mills, Inc., who died Nov. 12. Mr. Straube was associated with Nutrena Mills for many years and was president of the company for 20 years prior to 1945.

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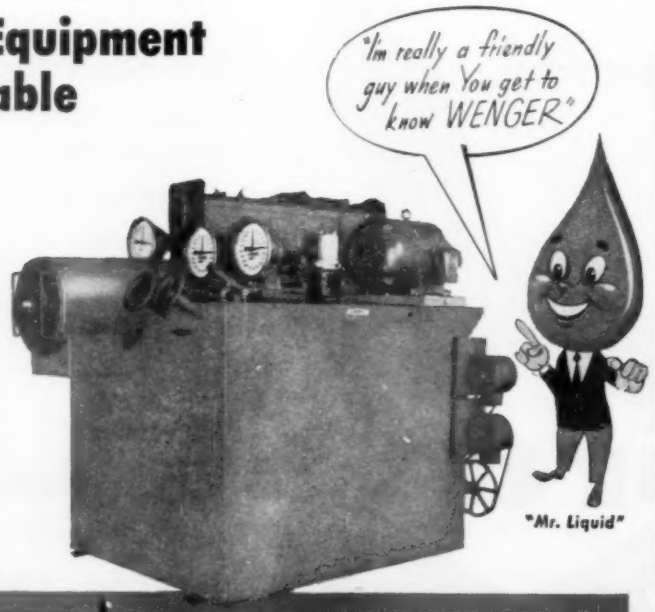

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

Jan. 27-28—Agricultural Industries Forum; University of Illinois, Urbana; Harold G. Halcrow, Agricultural Economics Department.

Feb. 16-18—Farmers Elevator Association of Minnesota; Hotel Nicollet, Minneapolis, Minn.; sec., Lloyd A. Nelson, Lumber Exchange Bldg., Minneapolis.

• • •

1959

Jan. 5-6 — Kansas Formula Feed Conference; Kansas State College, Manhattan, Kansas; chm., Dr. Tom Avery, Poultry Department.

Jan. 6-7—Elevator Business Managers Clinic, Michigan State University, Kellogg Center, East Lansing, Mich.; chm., Earl H. Brown.

Jan. 6-8—National Turkey Federation Convention and Exposition; Veterans Auditorium, Des Moines, Iowa; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 9-10 — Kansas Seed Dealers Assn.; Hotel Broadview, Wichita; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

Jan. 11-13—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Fleming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 18-20—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 20—Nevada Feed Conference; University of Nevada, Reno, Nev.

Jan. 20-21—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; chm., B. J. Duke, North Dakota Poultry Improvement Board, Bismarck, N.D.

Jan. 22-24—New Mexico Grain & Feed Dealers Assn.; Hilton Hotel, Albuquerque; sec., Parley Jensen, Box 616, Albuquerque, N.M.

Jan. 26-28 — Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Jan. 31—Regional Swine Producers Day; Ratcliffe Hicks Bldg., University of Connecticut, Storrs, Conn.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 9-10—Montana Nutrition Conference; Montana State College, Bozeman, Mont.; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 11-12 — Feed Mill Production School; Leopold Hotel, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 12-13—Utah Feed Manufacturers & Dealers Assn. Nutrition Conference; Brigham Young University, Provo; sec., Dr. Lawrence Morris, Brigham Young University, Provo, Utah.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 16-18—Midwest Feed Manufacturers Assn., annual convention, Muehlebach Hotel, Kansas City, executive vice president, Lloyd Larson, 20 West Ninth St., Kansas City, Mo.

Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., Olaf Erickson, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Poly-

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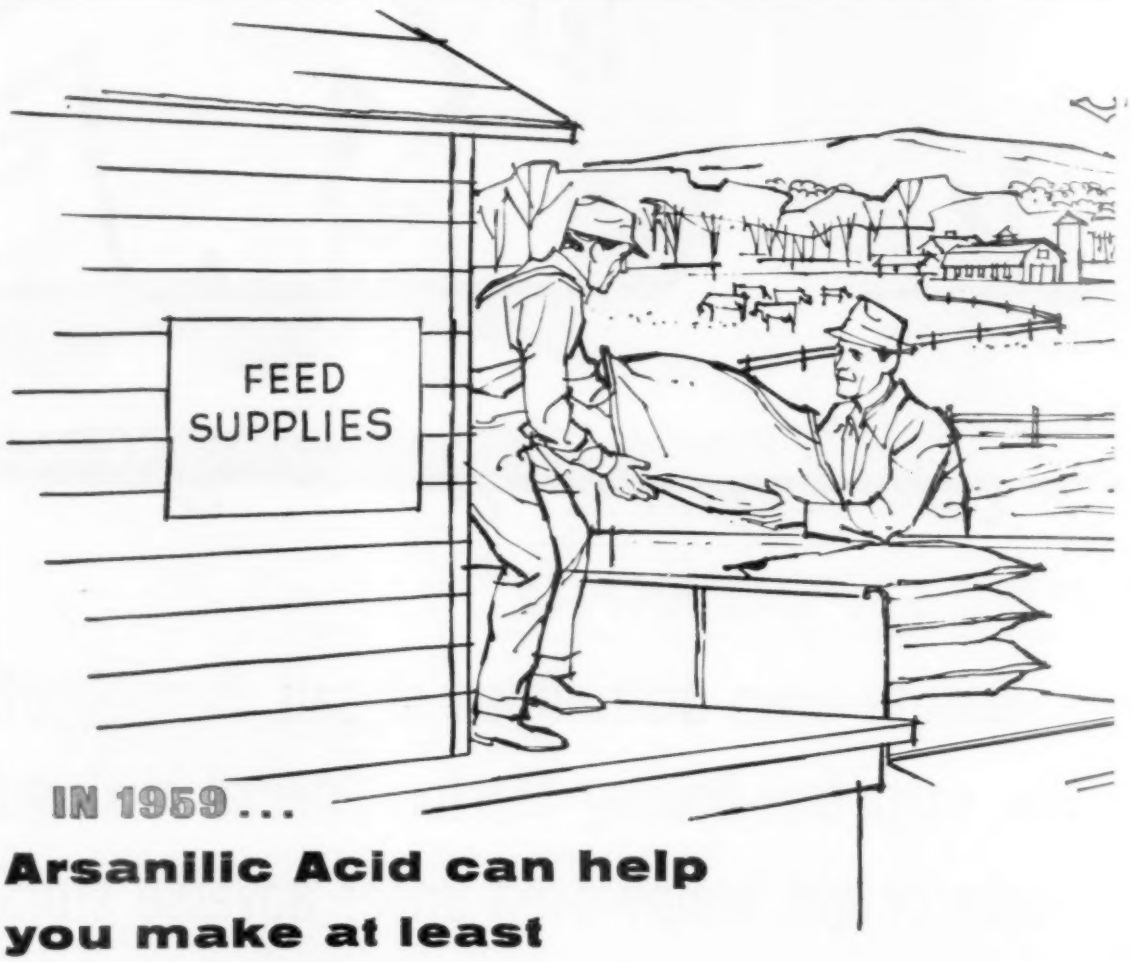

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Feb. 26—Illinois State Turkey Growers Assn.; Animal Sciences Laboratory, University of Illinois, Urbana, Ill.; sec., S. F. Ridlen, Poultry Extension Specialist.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

March 19-20—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. Richard D. Creek, Poultry Husbandry Department, University of Maryland, College Park, Md.

March 25—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

April 2-4—Pacific Dairy & Poultry Assn.; Coronado, Cal.; sec., Carl E. Nall, 1304 E. 7th St., Los Angeles.

April 12-15—National Fisheries Institute; Hotel Commodore, New York City; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

April 8—Purdue Egg Day; Purdue University, Lafayette, Ind.; sec., David D. Jackson, extension poultryman, Purdue University.

April 12-17—Grain Elevator & Processing Superintendents; Multnomah Hotel, Portland, Ore.; sec., Dean M. Clark, 1120 Board of Trade Bldg., Chicago 4, Ill.

April 23-25 — Joint Convention, Texas dealer and manufacturer groups; Hotel Texas, Ft. Worth; Texas Grain & Feed Dealers Assn., sec., Ben M. Ferguson, 614 Meacham Bldg., Ft. Worth; Texas Feed Manufacturers Assn., sec., Ben E. Schmitt, 3421 Park Ridge Blvd., Ft. Worth.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

CALENDAR FOR 1958-59

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May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9 — Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

June 8-10—Alabama Poultry Industry Assn.; Municipal Auditorium, Birmingham; exec. sec., W. L. Walsh, P.O. Box 567, Montgomery, Ala.

June 9-10—Association of Southern Feed and Fertilizer Control Officials; Velda Rose Motel, Hot Springs, Ark.; sec., Bruce Poundstone, Agricultural Experiment Station, University of Kentucky, Lexington, Ky.

July 10-14 — Georgia Feed Assn.; General Oglethorpe Hotel, Savannah, Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

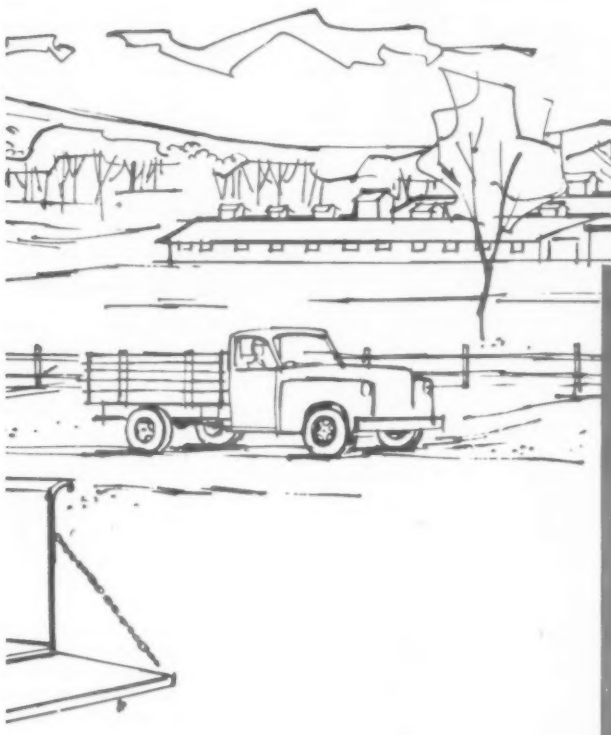
Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. v. pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Oct. 6-8 — Northeastern Poultry Producers Exposition; Farm Show Building, Harrisburg, Pa.; sec., Dr. Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A & M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 14 — Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.



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☐ Growing Feeds	90 grams
☐ Broiler Finishing Feeds	90 grams
☐ Medicated, trouble-shooting Feeds†	90 grams
☐ Supplements, Concentrates	††
LAYER FEEDS	
☐ Breeder Feeds	90 grams
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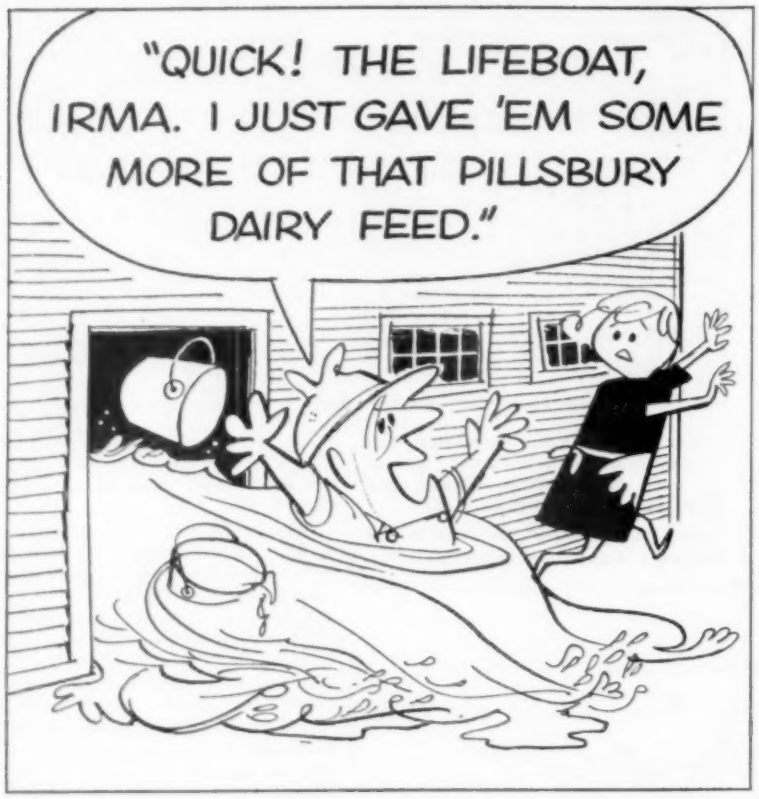

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Views on Farmers' Status in Integration Presented By Farm Business Days Speaker

MANHATTAN, KANSAS—If the expansion of contract farming is inevitable, as many believe it to be, farmers are faced with three important questions, according to Orlin J. Scoville, U.S. Department of Agriculture.

Speaking at Farm Business Days at Kansas State College, Mr. Scoville cited the three questions as follows:

"1. Is contract farming likely to put some farmers out of business completely, at least as producers of highly-integrated commodities?

"2. How can farmers preserve as many of their management rights as possible?

"3. How can farmers make sure they are adequately compensated for any rights given up?"

Mr. Scoville said he believes integration will reduce the number of farms because it encourages expansion in size and efficiency of the individual producing unit. He does not foresee an agriculture dominated by large corporation farms, but believes that farming will remain primarily a family-scale business.

"But if most farms were highly efficient, mechanized family units, the total number needed for our present level of output would be substantially reduced. In 1954 about 28,000 farms produced more than 90% of the broilers raised in the U.S. It has been pointed out that our hog requirements could be met by 60,000 farms having 100 sows each. We now have 2.5 million farmers who raise hogs. A little over 200,000 farms with 100 cows each could supply our present milk requirements. We now have about a half million dairy farms and almost 3 million farms on which milk cows are kept," he related.

Results of Technology

The trend to larger units is a result of technological changes and would continue, Mr. Scoville said, with or without contract farming, but integration speeds up the adoption of new technology.

The speaker mentioned that there is some question as to how many rights farmers should try to keep, and emphasized his point by saying, "If someone else has more knowledge of broiler rations than a particular farmer, should that farmer stoutly insist on retaining the right to determine the ration? Or would he be better off to exchange this right for a profit-sharing deal?

"On the other hand, any well-informed farmer who has kept up to date with technology should be very careful in delegating any of his managerial responsibilities. If he is also adequately financed, he may have little to gain from contract farming."

Alternatives

Mr. Scoville suggested that another way for farmers to retain decision-making rights is to seek alternatives to contract farming. The needs of mass merchandisers for quality products and for a regular and dependable flow of products might be met by improving market grades and standards, and by educating farmers to produce for the needs of their market.

"The devices that can be used to retain management rights," he added, "can also be used to improve farmers' bargaining power if they decide to give up certain management functions. Farmer cooperatives, for example, are a means by which farmers may receive more of the financial benefits of integration.

"Farmers s h o u l d be concerned about keeping the essential rights to the management of their farms in their own hands, either as individuals or through cooperatives, or both. Farmers make up only a third to a fourth of all the people who work to produce, process and market farm products. If large numbers of farmers should cease to assume major responsibilities for farm management and t h e risks of production, they might become submerged in the larger total of what has been called the 'agribusiness sector.' If the people who live out on the farms cease to make the vital decisions, they will become in effect piece workers, sharecroppers or wage hands."

Swine Short Course Planned at Maryland

COLLEGE PARK, MD.—A swine short course will be held Jan. 28-31 at the University of Maryland, with the annual Maryland Swine Field Day taking place on the last day of the short course.

Dr. James R. Ferguson, extension livestock specialist at the university, said that results of Maryland swine feeding and management investigations will be reviewed during the field day. Featured speaker will be William Haase, swine specialist from Swift & Co., Chicago.

Most of the national swine breed associations will be represented at the short course. Six manufacturers of swine equipment have reserved space in the judging pavillion for exhibits of swine equipment.

Short course students will attend a luncheon meeting of the Maryland Stockmens Assn Jan. 28. Dr. J. K. Loosli, animal nutritionist, Cornell University, will speak on livestock feeding.

The Maryland Swine Producers Assn. is co-sponsor of the short course and will hold its annual meeting in the university dining hall the evening of Jan. 29. Integration and contracts in the livestock industry will be the topic of discussion.

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New England Firms Urged to Limit Number Of Medicated Feeds

AMHERST, MASS.—Poultry diagnosticians of the New England states suggested to feed manufacturers recently that they limit the number of feed medications they carry in stock. It was asserted that the "great variety of medicated feeds carried in stock for treating poultry diseases" results in "high costs for registering and maintaining this inventory."

According to a report from the University of Massachusetts department of veterinary science, the following statement was issued to the New England feed industry in October:

"A great variety of medicated feeds is carried in stock for treating poultry diseases. The feed industry is fully aware of the high cost of registering and maintaining this inventory. The extra expense, of course, must be carried by the poultrymen.

"The poultry diagnosticians of the New England states feel that the large variety of medicated feed mixtures now available for treating poultry diseases is unnecessary for effective treatment of the majority of flocks. We accordingly suggest that the various New England feed manufacturers carry the following therapeutic feed medications in stock:

"1. Sulfaquinoxaline, 0.05%.

"2. A tetracycline, 0.022% (200 gm. per ton).

"3. Furazolidone, 0.022% (200 gm. per ton) (4 lb. nf-180 per ton).

"4. A fortified mixture containing 12,000 I.U. of vitamin A per pound.

"We are of the opinion that these medications will secure satisfactory results in most cases in which therapy through the feed is practical. The added cost of stocking other drug mixtures is not necessary to secure satisfactory treatment of most diseases.

"It is recognized that special medicated feed mixtures will occasionally be necessary for unusual disease problems. Such special mixtures will be recommended by the diagnosticians as required.

"These suggestions will periodically be modified as changes occur in methods of treating poultry diseases. We ask that each diagnostic laboratory be kept informed of all medicated feeds carried in stock by each company."

NEW HANDLING FACILITIES

WILCOX, ARIZ. — Barton Pratt, manager of Casa Grande Warehouse Co., Inc., here, announced plans for new grain handling facilities to speed up handling of this year's record grain sorghum crop. Yancey Sales, Inc., Scottsdale, Ariz., was awarded the contract for the complete job.

MARITIME SALES MEETING—Shown inspecting the Maritime Milling Co. plant in Buffalo at the Maritime Milling Co. and Park & Pollard Co. annual sales meeting are (left to right): Ronald S. Kaetzel, Harrisonburg, Va.; Richard Brouse, general manager, retail store division, East Aurora, N.Y.; Donald S. Chalker, Kirkwood, N.Y.; Earl C. Vaught, Harrisonburg, Va.; Russell V. Coffman, Woodstock, Va.; Fred T. Evans, Factoryville, Pa.; Frank N. Butruille, New Britain, Pa.; Bruce K. Conover, Jr., executive vice president, Maritime and Park & Pollard, East Aurora, N.Y.; John L. Keller, Reinholds, Pa.; Joseph Battaglia, production superintendent, Buffalo, N.Y.; J. Guy Smith, Selinsgrove, Pa.; James Hourihan, plant manager, Seaford, Del.; Robert D. Simpson, Canisteo, N.Y.; Thaddeus A. Belefski, Montandon, Pa.; John C. Hudson, Millsboro, Del.; Sanford S. Hall, Towanda, Pa.; Wilson H. Wilcox, Middletown, Del.; Anthony Schmittinger, Monocacy Station, Pa.; Lloyd G. Zuber, Fleetwood, Pa.; Harry P. Litchard, Riverhead, Long Island, N.Y., and Norman C. Grose, Laceyville, Pa.

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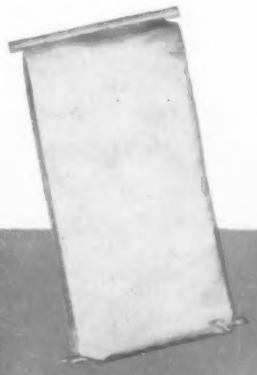

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"Staying Ahead" Builds Sales For Feed Mill in Wyoming

"Find something good and get into it ahead of your competitors. It's easier," according to Harry Heist, who operates under such a program

By Jess F. Blair
Feedstuffs Special Writer

AGGRESSIVE FEED FIRM—The A. & C. Feed Co., Cheyenne, Wyo., pictured here, is an old plant which has been renovated. Under the aggressive leadership of Harry Heist, the firm is said to be one of the busiest in the area. Mr. Heist has fostered several feeding projects.

Keeping an eye on the changing pattern of feeding and farming in his area has paid off in a growing business for Harry Heist, manager and chief stockholder of A. & C. Feed Co., Inc., Cheyenne, Wyo.

"We are interested in new trends, new things," he says. "Find something good and get into it ahead of your competitors. That's much easier than waiting till someone else develops a well-paying project and then trying to get your share of it."

It was this kind of enterprising spirit that led Mr. Heist in 1957 to install a new pellet mill and auxiliary equipment. More than 60% of his sales are made to large cattle and sheep ranchers, and on the basis of this, he bought a new California pellet mill, a molasses tank with a volume of a car and a half and more delivery trucks.

In 1957, he had the highest sales increase in a seven-state area in competition with some 350 dealers. He said the pellet mill was partly responsible because the firm was able to enlarge its territory significantly and meet competition better.

He makes pellets for cattle, sheep, hogs and chickens.

"Pelleting is comparatively new out here," he said, "but ranchers accepted this type of feed immediately. It is handled more easily, there is less waste and it can be put out on the snow where livestock can reach it."

MANAGER — Harry Heist, manager and chief stockholder of the A. & C. Feed Co., Inc., Cheyenne, Wyo., has promoted new projects, streamlined his feed mill to meet the needs of large cattle ranchers and gives good customer service. This combination of good merchandising techniques has more than doubled his business in the past few years.

Deliveries

The firm has four delivery trucks with a capacity of 7½ tons each. It makes deliveries within a mile or two of town free of charge, but since most customers live farther out, it charges on a zone basis for feed deliveries.

Some ranchers prefer to haul their own feed, but the larger ones who may order many tons at one time usually have it delivered. For the larger orders, large trucks and experienced drivers are needed.

The main pelleting season starts about Sept. 15 and continues into February or March. During this period, the mill must put out from 60 to 80 tons of pelleted feed daily.

Mr. Heist keeps about 10 employees besides himself during the winter months, but reduces them to five or six in the summer when ranchers are relying mostly on range grasses.

The sale of range cubes has also brought in allied sales, such as vaccines and animal health remedies. Mr. Heist also handles a large quantity of stock salt, stock tanks and some ranch equipment.

Promotion

In addition to the pellet mill, Mr. Heist has built much of the business by his promotional efforts. A few examples are these: He decided the area could absorb a small supply of turkeys and that the birds would bring in extra incomes for a few hard-hit farmers and ranchers.

First, he got a small pilot flock of his own, found they would pay off, then got others to try them. Though the project is still fairly small, Mr. Heist is furnishing feed and other supplies to over 5,000 turkeys.

With caged hens he did the same. He installed a few sample cages at the feed store, kept records on them and explained the new methods to everyone who came in. Finally, when the time was ripe, he called a meeting in his home. He invited four or five farm and ranch couples, served food and drinks, then had the district feed salesman talk to the group.

"I've learned one thing about lining up customers for a new venture," he said, "and that is to pick them carefully. Try to find leading farmers and ranchers who are reliable and have a record for good management. I also like young couples if their enthusiasm is tempered with a bit of experience."

At the meeting Mr. Heist got two or three couples interested in trying caged houses, and now the project includes over 8,000 birds. He also helped with the marketing until the customers were able to manage it themselves.

Feeding Tests

Mr. Heist has also conducted pilot feeding tests with hogs and cattle. He is so sold on this type of operation that he insists on his customers conducting split-feeding tests.

"If a man is dubious about some feed or feeding method, we help him set up tests with a few animals and compare the results with methods he had been using," explained Mr. Heist. "That way he will be thoroughly convinced. If, by chance, the test fails, there is no money lost."

One of the key factors in the company's success has been its customer service. Probably few feed mills offer the customer more in service. Mr. Heist is gone from the store much of the time, working with ranchers on feeding problems, visiting poultry owners and giving feeders advice on management problems. He also has an outside salesman who is well-trained in most phases of livestock and nutrition.

"Customer service cannot be stressed too much," he said. "Over half the business we have was brought in because we went out after it. And when you persuade a man to put in chickens, turkeys or hogs, when you are obligated to him. You must continue to give him advice, help with diseases and marketing and try to explain future trends and the new products. If antibiotics have proved helpful in experiments, then you must explain them to him, whether he wants to use them or not. It's the dealer's duty to make that man a better feeder or poultryman, or whatever he is doing."

Employee Training

Customer service does not fall altogether upon the manager's shoulders. The employees must also be trained in the same manner. Mr. Heist has instilled courtesy and cooperation into all his employees. When a customer walks into the store, someone greets him and fills his order. If he asks about pelleted feed or some new product, he will be taken into the mill and shown how the material is manufactured.

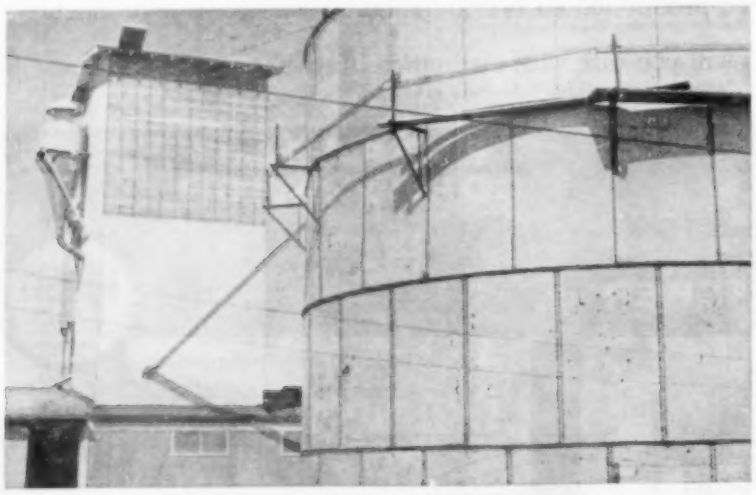
"Sometimes I think this business of personnel training is under-emphasized," said Mr. Heist. "Most of our boys have been with us several years and are very efficient in their work."

One employee, Joe Smith, is a mechanical wizard, Mr. Heist says. To keep Mr. Smith from accepting an offer from some other company, he was persuaded to buy stock at easy terms when the firm was incorporated in 1957. Now Mr. Smith is general mill foreman and in charge of all mechanical and building work.

Besides the sale of feeds and allied supplies, the company has developed some profitable sidelines. One is dog food, which brings in enough profit to pay the rent.

Mr. Heist is distributor for a fertilizer manufactured in Colorado and supplies it to several stores and dealers in his area. He also sells eggs for his poultry operators. By having customers come to the store after the eggs, he increases store traffic and increases tie-in sales.

He has also developed a large volume in selling grass seed, weed killers and products that sell to town residents, such as pet foods, peat moss and insecticides and fertilizers.



STORAGE FACILITIES—Shown here is part of the large storage tank at the A. & C. Feed Co., Inc. The firm's mill superintendent divided the tank into four compartments, and feed can be augered into or out of the tank. This is one of several innovations employed by the firm.

Integration "Pressure" Felt in Colorado

FT. COLLINS, COLO.—Colorado's poultry industry is beginning to feel the pressure of integrated production, according to T. E. Hartung, extension poultryman at Colorado State University.

"Integration has moved slower in Colorado than it has in other parts of the nation," Mr. Hartung related. "But the pressure is here, and it is only a matter of time before individual poultry raisers start to feel its influence."

The major reason for the spread of integration is the change in poultry retailing, the extension poultryman believes. Large supermarkets have done much to increase the popularity of poultry products, and they have done it by setting up rigid requirements. The supermarkets like to be sure of their sources of supply, so they contract in advance, stating exactly the quantity and quality needed.

BUYS STORAGE WAREHOUSE

WAPATO, WASH. — Purchase of the old Milli-Champ warehouse here by Logan's Reservation Feed Mill has been announced by Wilbur Logan. He said the company plans to equip the building for both bulk and sack storage. The ground floor will be used for sack storage and the basement for bulk storage. The building has railroad trackage and is convenient for unloading of railroad car shipments.

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

High Roughage System for Raising Calves Based on the Early Development of Rumen Function

● J. W. Hibbs and H. R. Conrad, Ohio Agricultural Experiment Station, Wooster; Journal of Dairy Science, Vol. 41, No. 9, pp. 1230-1247, September, 1958.

AND

Effect of Rumen Inoculations and Chlortetracycline on Rumen Function of Calves Fed High Roughage Pellets

● H. R. Conrad, J. W. Hibbs and N. Frank; Journal of Dairy Science, Vol. 41, No. 9, pp. 1248-1261, September, 1958.

ABSTRACTS

Three experiments were conducted using a total of 86 Jersey and 17 Holstein calves to evaluate the performance of calves receiving high roughage pellets (consisting of two parts of hay ground through a ½-in. hammer mill screen and 1 part concentrates, pellet diameter ¼ in.) and certain modifications of the pellets with addition of chlortetracycline, sources of extra minerals and vitamins (B complex), and variations in the level and source of protein. Data were also obtained on the establishment of certain indicator rumen microorganisms and various measures of rumen function at different ages in 71 of the Jersey calves included in the over-all feeding experiments. The results of this investigation are reported in the companion paper.

The results of the experiments show that the over-all effects of high roughage pellets were considerably better than those which had been obtained previously by the same workers in earlier experiments with calves fed loose hay and grain. While no direct comparisons were made with similar unpelleted rations in the current experiments, it is obvious that growth exceeded Ragsdale standards.

In Experiment 1 whole milk was fed to the calves at the rate of one pound per 10 lb. of birth weight until 7 weeks of age. In Experiments 2 and 3 extra amounts of milk were fed during the first two weeks of the trials with the amount gradually being reduced to zero at 7 weeks of age. The improved performance of the calves in the last two experiments indicated that more attention should be given to meeting the high energy needs of the young calf, particularly during the first 10 days of life. Comparison of the feed intakes on the pelleted rations with those obtained from the previous work with loose hay and grain fed separately demonstrated that the calves ate larger amounts of pelleted feed, especially during the first 10 days. Based on digestibility figures obtained with male calves on experiment indications were that the roughage portion of the pellet may have been ground too fine or was of too high quality for best possible results.

Including chlortetracycline in the milk to 7 weeks of age, and in 1 lb. of warm water from 7 to 16 weeks of age to furnish 100 mg./day had little effect on growth or feed intake. However, including 20 mg. of chlortetracycline per pound of pellets improved both feed intakes and growth rates.

No benefits were observed from including molasses (5%), distillers solubles (2.0 or 2.5%), monocalcium phosphate (0.2 or 0.3%), and brewers yeast (2.0 or 2.5%) in the basal high roughage pellets in two experiments.

When the total protein content of the basal high roughage pellets was lowered from 14.3% to 12.3% by replacing all of the soybean oil meal with corn, the growth and feed intakes were lower in both Jersey and Holstein calves. Replacing approximately one half of the alfalfa hay with good quality timothy hay had no appreciable effects on growth or feed consumption in spite of somewhat lowered digestibilities of dry matter and cellulose. The data also indicated a need for further work on the relative merits of alfalfa and good mixed hay as the roughage components of high roughage pellets with protein content a non-limiting factor (at least 14.5% total protein). Further work is also needed to determine whether or not the protein requirement can be supplied by the roughage alone.

Although there was a tendency for rumen-inoculated calves to perform slightly better than the uninoculated ones, the differences were not significant. Certain types of bacteria (hay group II organisms) did not become well established in either inoculated or uninoculated calves, and the practice of inoculation was not justified.

Rumen inoculated calves were observed to have high average ratings for rumen protozoa, but nearly all uninoculated calves remained free of rumen protozoa until 16 weeks of age. The inoculations also increased the average rating of Hay Group I indicator organisms and at the same time resulted in higher rumen levels of butyric acid and lower levels of propionic acid.

Further work should be done with cud-inoculation to determine the effects when less grain is used and when poorer quality of roughage is used in the high-roughage pellets. It is suggested that 1% of bone meal, dicalcium phosphate or some other good phosphorus source be included in the grain mixture.

There is also a clear indication that rumen fermentation was increased at an early age in calves fed pelleted high-roughage rations, possibly due to increased feed intake and increased concentration of dry matter in the rumen intakes.

COMMENT

Much work is currently under way countrywide to determine the value of high-roughage pellets in ruminant rations. Relatively little has been reported to date on the value of such diets for calves as young as those used in the current Ohio work. Many practical nutritionists have suspected that such diets would be beneficial for young calves—this work seems to substantiate their beliefs.

Cud-inoculation for calves had become a dead issue in the opinion of many under ordinary conditions of management when loose hay and grain rations were fed. The experiments conducted under such conditions did not seem to justify the expense or time involved in cud inoculation. A very distinct possibility now exists that increased experimentation and field testing of high roughage pellets for young calves may necessitate a revaluation of this subject.

Omaha Elevator Co. Builds Dock Facility

OMAHA—Dock facilities for barge shipment of grain on the Missouri River by the Omaha Elevator Co. are scheduled for completion prior to early spring traffic, according to an announcement in the Grainville Bugle, publication of F. H. Peavey & Co., Minneapolis.

The Minneapolis firm, through its capital improvement program at Omaha, is supplying a link between the large grain producing area of eastern Nebraska and western Iowa to southern and southeastern markets.

Located on the Council Bluffs (Iowa) bank of the river, the dock will be the first privately-owned facility in the area, although Omaha is served by a municipal dock. Omaha Elevator Co. has offices in Omaha, while the elevator is situated in Council Bluffs.

The docking and grain handling facilities are being erected on a 10-acre tract of land with approximately 600 ft. of river footage.

"It is our intention to truck the grain two miles from the elevator to the barge," said F. P. Heffelfinger, Jr., vice president and general manager.

He said present plans call for the transfer leg only, but that new storage facilities and possibly a truck scale for itinerant truckers will be constructed if business warrants it.

"Barge and truck transportation should furnish a cheaper product to the eventual consumer. By anticipating further development on the river, we hope to be able to place ourselves in an advantageous merchandising position—a position which must be maintained to meet the problems of the future," Mr. Heffelfinger said.

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FOXBILT "TOPPERS" HONORED—More than 200 dealers and sales representatives for Foxbilt Feeds attended the annual Topper's Party held by Foxbilt, Inc., in Des Moines. Edwin L. Fox, president, said sales in 1958 were about 40% over 1957 and 88% above 1956. Pictured are recipients of the highest 5-star topper awards with their wives. Left to right in the front row are: Mr. and Mrs. Walter Ditzfield, Mr. and Mrs. Carl Halferty, Mr. and Mrs. J. B. Halferty and Mr. and Mrs. Joe Bottiger. In the back row (left to right) are: Mr. and Mrs. Leon Gelner, Mr. and Mrs. Martin Weiler, Mr. and Mrs. Leonard Prinz, Mr. and Mrs. Elmer Engelbarts, Mr. and Mrs. Robert Kibler and Mr. and Mrs. Walter Gienapp. Mr. Gelner and Mr. Kibler were the top salesmen. Top dealers were Prinz & Weiler Feed & Grain Co., West Point, Neb., represented by Mr. Weiler and Mr. Prinz; Engelbarts Feed Co., Woden, Iowa, represented by Mr. Engelbarts; Gienapp Hatchery, Manchester, Iowa, represented by Mr. Gienapp; Farmers Elevator Co., Robinson and Leona, Kansas, represented by Mr. Ditzfield and Mr. Bottiger, and Halferty Brothers, Plattsburg, Mo. Dale Buckmaster, Fremont, Neb. (not pictured), was named top division manager in the company, and Dave Peck, promotion manager of the firm (not pictured), received a gold watch for 21 years of service to the firm.

Need Reduced Costs To Survive, Delmarva Poultry Growers Told

SALISBURY, MD.—The Delmarva poultry industry, in order to survive, must shave costs at every point, several hundred Delmarva poultry growers and representatives of allied industries serving them were told at the fourth annual poultry forum here, sponsored by the Delaware Poultry Laboratories, Millsboro, Del.

The warning to poultrymen from Delaware, Maryland and Virginia was sounded during a panel discussion by Ed McCauley, president of the Delaware Poultry Improvement Assn., who noted that one way to save was to follow the example of Georgia and other competing states which raise their own hatching eggs and thus reduce the initial cost of the chick.

Tribute was paid at the dinner meeting to Dr. Hiram N. Lasher, who founded the laboratories.

Reports on new research in broiler nutrition and poultry diseases during the year were given by Dr. Gerald F. Combs, University of Maryland, and Dr. Morris S. Cover, University of Delaware.

During his nutrition resume, Dr. Combs emphasized the need of processing soybeans on the Delmarva Peninsula. He explained that many acres of soybeans are raised in Delaware but that they are sent away to be processed.

He said that in order to obtain proper nutrition at the lowest possible cost, the soybeans could be processed here.

He named as a second important undertaking for the future of broiler raising the eventual separate rearing of cockerels and pullets. He explained that the cockerels gain weight faster than the pullets, but said that just now there aren't enough chicken sexers even for present need.

Poultry Diseases

Dr. Cover, discussing research in poultry diseases, named infectious hepatitis as one disease on which much positive work has been done. He said that this appears in birds 10 weeks of age or older and while it does not cause as much mortality as some other diseases, it produces cull birds. He explained the differences between infectious hepatitis and other diseases such as hemorrhagic syndrome and cecal coccidiosis.

He stressed the need for adhering to the dosages of medicine prescribed rather than reducing dosages for economy's sake.

Dr. Cover also mentioned teraphthalic acid and said that experiments during the past year tended to show that a low, though not deficient, calcium diet would produce the same results of increasing the effectiveness of antibiotics.

Dr. Cover also stated that in spite of a great deal of research, leukosis is still the No. 1 problem in the poultry field. He said that means of prevention or cure have not been worked out.

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ADDING FAT TO FEEDS

● Storage ● Mixing
● Handling ● Pelleting
● Adding Fat After Pelleting

By Warren E. Walter
Sprout, Waldron & Co., Inc.

EDITOR'S NOTE: Suggestions on various phases of handling and adding fats to feeds are provided in this article by Warren Walter, chief product engineer of the size classification division of Sprout, Waldron & Co., Inc., Muncy, Pa. In addition to other aspects of this subject, Mr. Walter devotes attention to the addition of fats after pelleting. He says the trend is in this direction, and he describes it as "by far the most satisfactory procedure." This article is from a talk by Mr. Walter at a district meeting in Asheville, N.C., of the Association of Operative Millers.

Many of the feeds produced today contain added fat, and the trend is toward the use of higher levels of fat in the production of the high energy, high efficiency feeds.

This discussion will cover the handling, storage and mixing of fats in feeds as well as pelleting and the latest trend toward adding fat after pelleting.

Almost any grade of animal fat is satisfactory for use in feeds so long as it is palatable and properly stabilized. Animal fats, commercially available for use in feeds, are divided into two classes according to their titer or melting point. Those having a titer of 40° C. or higher are classified tallows, while those with a titer of less than 40° C. are termed grease. Each of these classes of rendered fat is further divided into grades depending on the free fatty acid content, its F.A.C. color maximum, and the amount of moisture and soluble materials present.

We know that the major factors to be considered in selection of the grade of fat to be used are: (1) palatability, (2) stability, (3) availability of a sufficient and steady supply of the grade of fat selected. All fats used in feeds must of course be stabilized with a suitable anti-oxidant to prevent their becoming rancid, and it is advisable for suppliers of fat to stabilize it as soon after rendering as possible.

Tallows and greases will be received from producers in tank car—or tank truck shipments, or possibly in drums depending upon the amount required and the storage and handling facilities available at the feed mill. If shipments are received in tank cars or tank trucks, adequate storage facilities must be provided for receiving the fat in these quantities and the tanks should be adequate to allow the fat to be kept as near as possible to its original quality. The most important point in storing fat is to remember that it must be kept dry. The prime enemies of stored fat are air and water, and by far the most important adverse factor is water. Clean, dry fat stored at ordinary temperatures in clean tanks will keep very well.

Storage tanks at the mill can be either vertical or horizontal and are generally of either steel or concrete construction. Concrete storage tanks are satisfactory only if the interior surfaces have been treated with a non-toxic, non-fat soluble coating. Untreated concrete is porous and warm fat will eventually penetrate and soften the walls of the tank. Treatment of the interior surfaces of a concrete tank should be done before any fat is stored in the tank so that the coating may be applied to the clean surface of the concrete.

In the case of steel storage tanks, it has been found that very often second-hand tank cars may be used to very good advantage for this purpose. All tanks, whether steel or concrete, must necessarily be vented at the top and these vents should be hooded or protected in some manner from the weather.

Storage tanks should be completely emptied periodically for cleaning, and in this connection thought must be given to the size of tanks to be installed. Having one large storage tank is not only expensive but rather undesirable. Two smaller tanks are better than one large tank because operations may often continue even during equipment failure, and repairs that must be made to one tank can be accomplished while the second tank is being utilized.

Heating

In order to keep fat in its best condition, it is wise to store it at as low a temperature as possible but still maintain it in its fluid state. Where fat is being used daily, it is generally kept at a temperature of approximately 110° F. to 120° F.

A point to remember when using vertical type storage tanks is that a steam coil loop should be run up to a point above the top level of the fat, or the steam pipe coming into the tank should be run in at the top and down one side of the tank to the heating coil at the bottom. This loop is to melt a channel of fat vertically in the tank which will permit circulation of liquid fat and prevent high pressure build-up at the bottom of the tank under a solid surface of fat. Heating coils in some vertical tanks are made in the form of a spiral around the inside of the tank just above the bottom. In any type of installation the coils must be leveled so that they will drain free and no condensate collects in the loops to freeze in cold weather. Whenever heating stops, it is good practice to disconnect the heating coils and blow out any condensation with compressed air, and leave the coils disconnected until they are again needed.

If steam is not readily available for heating fat in some mills, or if the fat is received in drums, it may be more convenient to use electric heaters to melt it. An electric immersion type heater or a drum heater may be used, but no matter what type of electric heater is utilized, it should be thermostatically controlled and installed in such a way that there is no localized overheating in any part of the heater that is not covered by fat. Fats are flammable and will burn if brought into contact with an overheated electric heating element. If properly installed and maintained,

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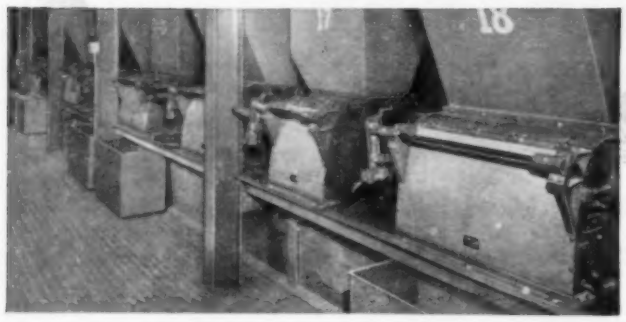

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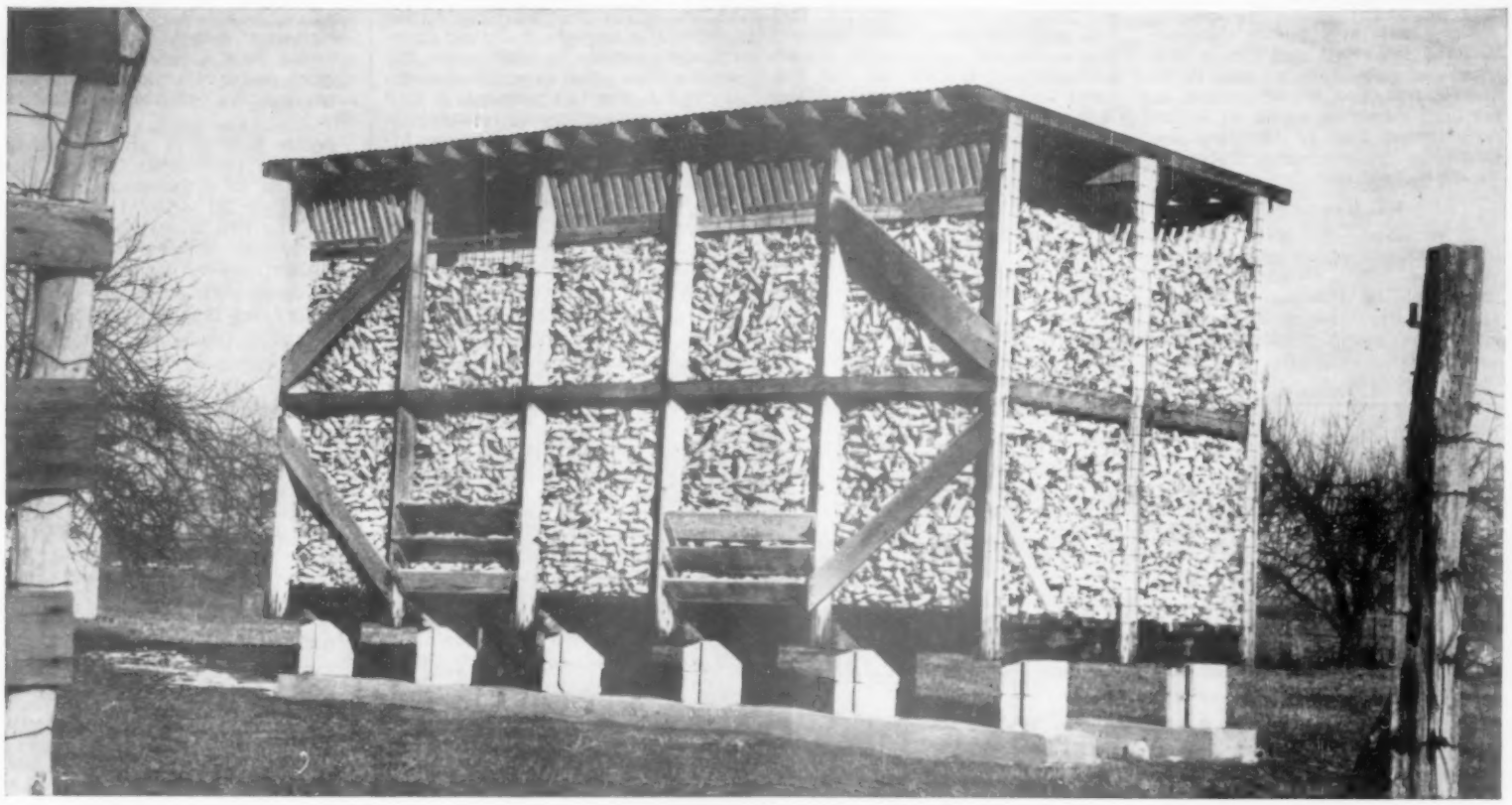
ULTRA-LIFE NUTRITIONAL FORUM—More than 50 feed manufacturers and their employees attended a 5-day Ultra-Life Nutritional Forum at Bugbee-Hive Resort on Lake Koronis, near Paynesville, Minn. Among those attending the forum sponsored by the East St. Louis, Ill., firm were the men pictured. They are (left to right):

First row—Chester Anderegg, Olson Feed Store, Blair, Wis.; William Costello, Ultra-Life serviceman; Milton Mieske, Curtiss (Wis.) Elevator; Carl Hagen, Ultra-Life district manager; S. D. Formica, Ultra-Life poultry department; George Honea, manager, Ultra-Life livestock department; William Jenner, assistant manager Ultra-Life livestock department; Ronald Olson, Olson Feed Store, Blair, Wis.; Carl Essen, and Ernie Essen, both of Northern Supply Co., Amery, Wisconsin. Second row—Lawrence Bol, Zutter Elevators, Elk Mound, Wis.; Ed Vier, Farmers Cooperative Assn., Baldwin, Wis.; Art Bishop, Northern Supply Co., St. Croix Falls, Wis.; Gerald Rollins, Zutter Elevators, Jim Falls, Wis.; Charles Hocker, Northern Supply Co., Ridgeland, Wis.; William Zutter, Zutter Elevators, Eagleton, Wis., and Jerry Raffenberger, Almena, Wis.; Norman Butler, Nye, Wis.; Don Essen, Centuria, Wis.; Gene Martinson, Amery, Wis.; Willis Metcalf, Amery, Wis.; Bernard Juza, Barren, Wis., and Lester Sampson, Rice Lake, Wis., all with Northern Supply Co. Third row—Andy Gunderson, Osseo (Wis.) Elevator Co.; Lester Fruit, Zutter Elevators, Rusk, Wis., and Jake Braun, Howard Lake, Minn.; Donald Westphal, Howard Lake, Minn.; Peter Terres, Melrose, Minn.; Myron Smith, Waverly, Minn., and George Hollerback, Howard Lake, Minn., all of Munson Feed Co.; LaVerne Vanderwyst, O. W. Trindal Co., Granton, Wis.; Clayton Inglebretsen, O. W. Trindal Co., Loyal, Wis., and Melton Roehrl, Melrose, Minn.; Edward Munson, Melrose, Minn.; Joe Ellering, Melrose, Minn., and Floyd Munson, Howard Lake, Minn., all of Munson Feed Co., and Mac Elwood, Northern Supply Co., Cameron, Wis.



60,000 units of vitamin E—maybe! The owner estimates this crib will deliver about 700 bushels of shelled corn. If grown under ideal conditions of soil, temperature, and moisture, this much corn would have somewhere in the neighborhood of 60,000 International Units of vitamin E when harvested.

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electric heaters are perfectly safe and very convenient.

Some mills may find it necessary to have long feed and return lines from the main storage tanks to the mixing area, and in these cases all fat lines should be steam or electrically traced. Also, to minimize heat loss, these lines, including the tracer, should be insulated.

Use Iron or Steel

As we know—and probably many of us from sad experience—all piping, valves and fittings in contact with fats should be of iron or steel construction. Brass, bronze or any other metals containing copper should be avoided because of the possibilities of dissolved copper hastening the development of rancidity in the fats. The other consideration of course is that equipment replacements are unnecessarily high since the fat corrodes and deteriorates the fittings very rapidly.

It has been pointed out to us that some plants producing fat have used brass valves and still maintain a fat having a high stability. This is altogether possible as long as there is no corrosion of the brass and all metal surfaces in contact with the fat are kept scrupulously clean. When copper, brass or bronze fittings are exposed to warm fats, air and moisture, those fittings at the end of a line have a greater tendency to corrode and cause trouble than those in the middle of a line where air and atmospheric moisture do not contact the same surfaces that are exposed to the warm fat. For this reason it is well to establish a policy of frequent inspections where brass or bronze fittings are being used and as replacements must be made it is advisable that they be made of iron or steel.

Liquid fat is relatively easy to pump and most types of pumps can be used. Here again experience has shown that a gear type positive displacement pump is probably the most satisfactory. As with fittings, the pumps should be of either iron, steel or stainless steel construction and brass or bronze should be avoided. Gear pumps should be equipped with pressure relief valves so as to guard against motor over-loading in the event that they pump against a closed line.

Before tallows or greases can be mixed into feeds efficiently, they must be heated to a temperature of approximately 165 to 180° F. This heating can be done in several ways. Common methods utilize a small secondary tank or heat exchanger located near the mixer in which the fat is to be added. The tank or heat exchanger is heated to the desired temperature and thermostatic controls are pro-

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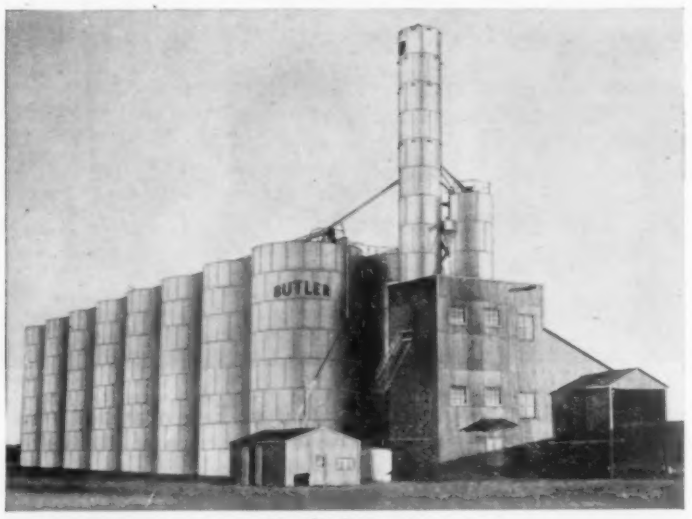

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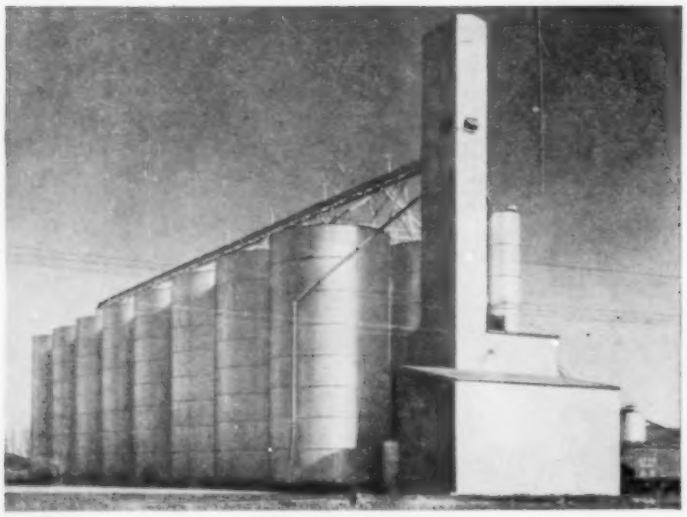
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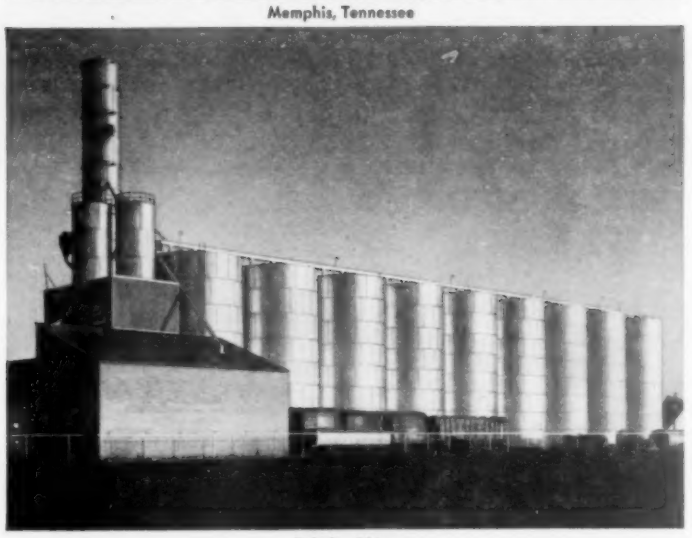
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Butler solves special storage requirements at three new plants for National Alfalfa

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vided to maintain an even temperature of the fat. These secondary heating units are fed by pump from the main tank and are located near the mixer so as to keep heat loss from them to the mixer at a minimum.

Mixing of Fats

Generally speaking, mixing of fats in feeds can be accomplished in practically any existing type of feed mixers. Many mills have converted horizontal, vertical or continuous mixers to handle fats, and frequently other equipment already on hand for handling other liquids may be found adaptable to handling of fat. It will be found that fat is one of the easiest liquids to mix into feeds because it is readily absorbed by most other feed ingredients.

Where a batch type mixer is used and the production volume is not too high, measured amounts of fat can be run into the feed while the mixer is running. Equipment as simple as a bucket with nail holes in the bottom may be hung at the top of the mixer permitting the fat to be introduced slowly into the feed.

Where large mixers are employed, the heated fat can be run, or pumped, directly into the mixer in a small stream or streams at a point where there is sufficient agitation to mix the fat and the feed before much cooling of the fat takes place. In the case of continuous mixers, the heated fat can be run or pumped in along with the other feed ingredients, but it should be admitted at a point where most other ingredients have already been in contact with the mixing screw.

Various means of measuring the amount of fat going into the feed are available, from the simplest weighing or measuring in a bucket to very elaborate equipment for automatically proportioning the fat flow to the feed flow through the mixer. Flow meters or proportioning pumps can be used, either manually or automatically controlled. A simple, manually operated flow meter is relatively accurate yet inexpensive. In large operations, of course, an automatically controlled flow meter will be found useful since it can be set for any percentage level for fat to be added and it will maintain this percentage regardless of other variations in the mixer operation.

Pelleting

Pelleting of feeds containing added fat requires a change in technique. Feeds can be pelleted successfully with fat added at levels up to 2 to 3%, and there have been many cases where a good hard pellet has been produced with fat added as high as 5%. Above this level, and even in the range of 3 to 5%, difficulty is often experienced in obtaining a good hard pellet that will withstand handling. The difficulty in obtaining good pellets with added fat arises from the fact that the fat provides additional lubrication which causes more rapid passage of the feed through the die so that there is not enough pressure put on the feed to produce a hard pellet. To overcome this problem many methods have been tried. The first, naturally, was to increase the die thickness. An illustration of this would be a 5/32" die which on dry feeds would be about 1½" thick. If 2% fat were added, the die thickness would be increased to 2¼" or 2½".

Considerable work and experimentation have been done on additives, both as binders and as a means to increase the rate of absorption of the fat into the feed particles, and this again was done to reduce the lubricating effect of the fat. This method has been used to some satisfaction; however, to date we are not aware of a complete and satisfactory answer in this direction.

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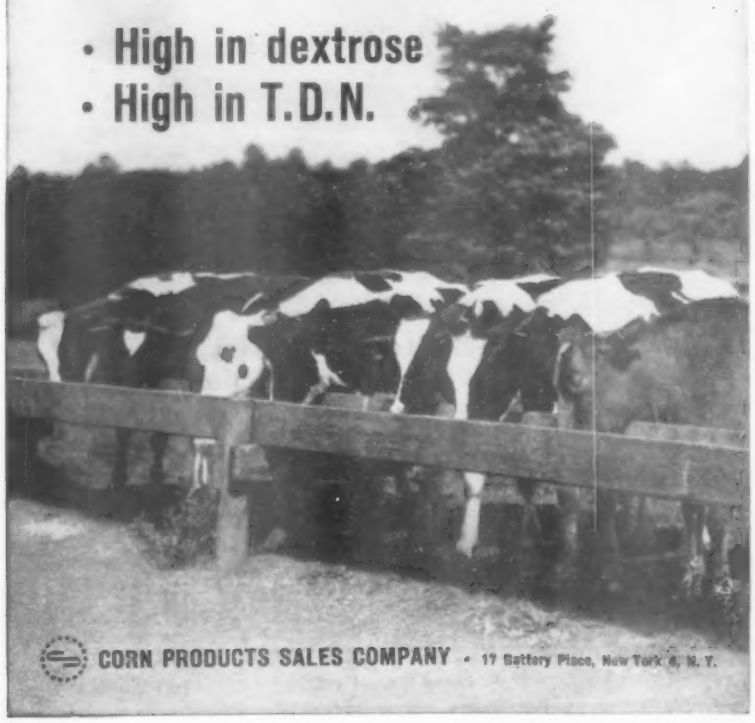

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the rate of absorption is another very important factor.

If a relatively low percentage of hot fat is added to a cold feed (excluding poultry fat), it solidifies immediately and the rate af absorption is reduced causing excessive lubrication as the feed passes through the die. If, however, the fat is added to hot feed, allowing it to remain in a liquid state, the rate of absorption is greatly increased. More particle surface is made available for the fat to cover and absorption takes place more readily. Thus, it has been found that finer grinds and higher temperatures will produce harder pellets.

Here, of course, economics enter the picture. The cost of pre-heating feeds and extremely fine grinding is prohibitive. However, it is possible to use thicker dies and to use medium grinds on ingredients. It is also possible to increase the feed temperature at the pellet mill to approximately 180° F. All these things result in a better pellet.

While research is going on now and will undoubtedly continue to go on with these approaches, we feel that the trend is in the direction of adding fats after pelleting.

At the present time there is no question as to this being the best method of adding fat. To do so after pelleting the formula is by far the most satisfactory procedure, particularly when combined with reasonable additions before pelleting. Adding a small percentage of about 1% fat previous to pelleting will in many cases increase production without lowering pellet hardness or quality. This will increase the die and roller life of the pellet mill, thus providing lower operating costs. The remaining amount of fat can be added to the pellets in the percentage as required. Hard feed pellets will absorb fat in amounts over 3% without breaking. As a matter of fact, there is an actual hardening of the pellet when the hot fat is added.

Experience has shown that pellets, after leaving the pellet mill, should be cooled and screened so that fines returned will not increase the fat content of the formula previous to pelleting. At this point, hot fat can be sprayed onto the controlled and measured pellet stream which can then pass into a retention drum until the fat has had a chance to cool and harden on the pellets.

Two Schools of Thought

At this stage there are two schools of thought. The first advocates either binning or sacking the pellets after properly coating with fat. The second method proposes that pellets, after leaving the retention drum, should go to a dryer in order to raise the temperature of the pellets and fat—thus allowing for a rapid and more thorough absorption of the fat. The pellets then must be cooled to atmosphere or room temperature through conventional type pellet coolers.

The first method described briefly would present the simple, low cost operation. It would, however, not be as flexible. The results obtained could vary with the quality of the pellets and with the type of fat used. This first method requires the use of a continuous meter for measuring a continuous flow of pellets, a fat metering unit, and a retention drum of proper design to assure effective cooling and hardening of the fat on the pellets. In the second method we would add to this unit a dryer and a pellet cooler. The heat for the dryer would, from necessity, be steam; thus, boiler capacity in many mills would have to be increased.

Regardless of whether either of the above methods is used or whether any other acceptable process is installed, there are some basic facts which have been established:

(a) If fat is added to hot pellets, the rate of absorption is accelerated, causing uneven distribution. As explained previously, pellets should be cooled and screened before adding the hot fat.

(b) The physical structure of the pellet does not deteriorate after fat is added and, in fact, the reverse is true; the pellet hardness is increased.

(c) If the pellets are properly conditioned or tempered, there is little or no bleeding of the fat from the pellets once it has been added.

(d) Adding of fat to crumbled pellets is preferable to the crumbling of high fat pellets.

(e) The cost of adding fat to pellets is slightly greater than that of adding fat to the meal before pelleting, but if one considers the economic and quality advantages of adding fat to pellets, these added costs are soon more than overcome.

Our company has developed a system for adding fat to pellets in percentages ranging from about 1½ to 10%. This system can accept pellets as they come from a stream at a variable rate, and the fat is added in minute quantities by a series of steps. Proper dispersion of the fat is assured by discharging the pellets into a retention drum, although this aspect is not nearly so important as the time permitted for the fat to cool and to be absorbed by the pellet itself.

This system, with design modification, can also be used successfully on pellets coming from a bin.

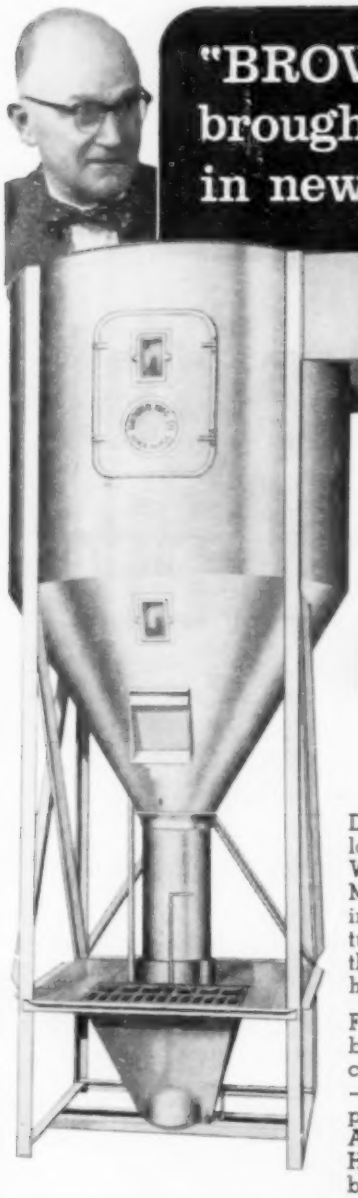
(The Sprout-Waldron system—either "on stream" or "on bin"—was described and illustrated in the Nov. 8 issue of Feedstuffs, page 7.)

Summary

In summation, I should like to point out that while the research into the problem of high fat pelleting is, and will continue, to take many directions, it is felt that most of the work in the immediate future will center around refining and developing the present methods for adding fat to the finished pellets. This we believe to be true mainly because existing equipment is designed to make good, hard, fat pellets, and existing experience has provided a know-how and efficiency which people cannot give up easily. It is also true that addition of fats to the finished pellets provides a greater flexibility in the choice of the type of fat that may be used. It is presently indicated that adding fat to mash limits the use of certain tallows or mixtures of tallow and vegetable fat. By adding fat to the finished product, the feed manufacturer may take advantage of the market availabiilty and fluctuating prices of different fats.

Joins Clemson College

CLEMSON, S.C. — Dr. Robert L. Garrison, author of several scientific articles dealing with the feeding of fat to ruminants, has joined the staff of the animal husbandry department at Clemson College.



"BROWER MIXER brought 25% increase in new customers"

Says M. A. Anderson, Anderson Grain Co., Nacogdoches, Texas

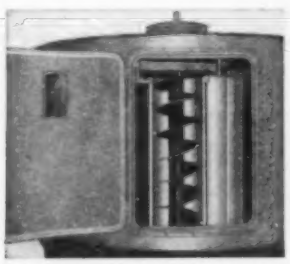
Increased profits, too!

"Mixing our own brand of feeds with a Brower Mixer has meant a 10% increase in profits, and our custom mixing service has brought a 25% increase in new customers. We also save on feed costs by mixing feed for our own 50,000 broilers. We have had a Brower Mixer for 15 years, and it is tops in trouble-free service and economy of operation."

BROWER *Whirlwind* MIXER

Dependability, fast mixing action, and low cost operation make Brower the WORLD'S LARGEST SELLING MIXER! Brower action WHIRLS the ingredients instead of just stirring or tumbling them . . . produces the most thorough mix you can get. Every sack has the same even mixture.

FAST and ECONOMICAL—a perfect blend in about 10 minutes at a power cost of only 3¢ to 5¢ a ton. Five sizes —700, 1200, 2000, 3000 and 4000 pounds-per-batch mixing capacities. Above-floor and below-floor models. Heavy welded steel construction—built for years of trouble-free service.



Interior readily accessible through large hinged service door and hinged conveyor sleeve.

Notice the mixing paddle at top which WHIRLS the ingredients for the most thorough mix.

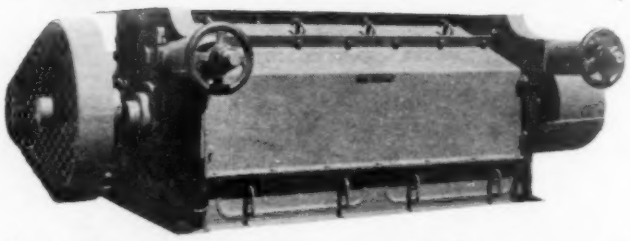
Glass observation window at eye level provides easy inspection of mixed feed at any time.

WRITE for FREE CATALOG

BROWER MFG. CO.
402 N. 3rd, Quincy, Ill.

World's Largest Selling Mixer

Helm Crumblizer



The Helm engineers have successfully designed a crumblizer for high production and uniform crumbles. Height being only 20" and so arranged to go under the vertical cooler.

The Helm Crumblizer is very smooth and quiet. It is equipped with V-belts and automatic take up. There is a by-pass built into the unit to allow the pellets to go through the crumble rolls or by-pass the rolls. The unit is made in two sizes.

WRITE TODAY FOR FULL INFORMATION

HELM MANUFACTURING CO.

MANUFACTURERS OF FEED MILL MACHINERY

2550 N.E. 28th St. Phone MArket 4-7223 Fort Worth 6, Texas

Figure 1

"Quaker's know-how in bulk feeds and concentrates is helping dealers make bigger profits in the changing feed picture,"

says **J. C. HUCKABEE,** *Feed Sales Manager of The Quaker Oats Company, in this report to Ful-O-Pep Feed Dealers*

J. C. HUCKABEE joined The Quaker Oats Company in his native Texas and in 6 years was promoted to Feed Manager of the Division. "Huck's" remarkable sales ability and leadership advanced him rapidly to his present position as Manager of Quaker's entire Feed Sales.

"As I see today's feed picture, it presents to feed dealers a fork in the road. Which route will you take?

"At this critical time, I am glad to report to you on what The Quaker Oats Company is doing to help Ful-O-Pep Dealers take the road that leads to new profit opportunities.

"Our company has carefully read the signs at the fork in the road. One sign pointing to bigger profits is BULK FEED. Quaker's leadership in bulk feeds is preparing Ful-O-Pep Dealers to attract the new kind of business developing in our changing farm economy. Quaker recognizes such facts as these:

"*Fewer feeders* mean small-order and bag business goes down. There was a 26% decline in the number of farms from 1920 to 1954. The number of feeders is estimated to be almost 30% smaller in 1965 compared with today.

"*Larger feeders* are developing due to the decline in numbers combined with increased demand for livestock products by our rapidly growing population.

"*Today's more specialized feeders* are cost-conscious feeders. And their business is going to the dealers who have the bulk feeds for more profitable feeding.

"I assure you that Ful-O-Pep Dealers are taking advantage of Quaker's know-how in bulk feeds. Already several of our plants are shipping half their feed in bulk. And the use of bulk feeds is increasing in all areas.

"Another sign pointing to the profit route is CONCENTRATES. And here, too, Ful-O-Pep Dealers are profiting from Quaker research and know-how.

"In today's battle against rising costs, feeders have to get more meat, more milk, more eggs from grain. To meet this challenge, Quaker has developed high-quality concentrates and hundreds of proven mixing formulas that are setting amazing new feed conversion records in practical on-the-farm feeding tests.

"Big feeders who need the lower-cost feeding provided by bulk feeds and concentrates are being drawn to Ful-O-Pep Dealers.

"The feed dealer who wants to move ahead with the times can find the aggressive leadership he needs in The Quaker Oats Company."

J. C. Huckabee

FUL-O-PEP FEEDS

made by The Quaker Oats Company

We urge Feed Dealers to visit our modern Feed Mills located at: Cedar Rapids, Ia. Memphis, Tenn. • St. Joseph, Mo. • Sherman, Tex. • Shiremanstown, Pa. • Lawrenceburg, Ind. • Chattanooga, Tenn. • Tampa, Fla. • Asheville, N. C. • Jasper, Ala. • Los Angeles, Calif.

World's Largest Selling Mixer

NOW RUN YOUR GRAIN MOISTURES the IMPROVED more ACCURATE way!

with the NEW SEEDBURO Steinlite model 500 RC MOISTURE TESTER

25 YEARS OF RESEARCH HAVE MADE THESE FEATURES POSSIBLE

1. NEW ROUND FUNNEL—handles larger (250 gram) sample—especially designed for whole grains—automatic funnel reset
2. EASY-TO-READ, built-in, eye-level thermometer
3. LARGE 9 INCH METER gives automatic reading . . . no button to push, or dials to adjust. One scale for all moisture ranges
4. NEW EASE OF OPERATION AND SPEED—balance tester and thereafter all that is necessary is to drop sample into test cell and obtain automatic meter reading at that time

Tests are equivalent to the basic standards of the U.S.D.A.

You'll have to put New Seedburo Steinlite 500 RC through its paces to find how easy and conveniently this improved model makes moisture tests on corn, wheat, oats, rice, soybeans, flax, rye and sorghums. You simply drop the larger more practical 250 gram sample into the test cell and read the meter. Full information and the famous Seedburo service is as near to you as your phone . . . Call ANdover 3-2128 Collect, or—

"See your Seedburo Representative"

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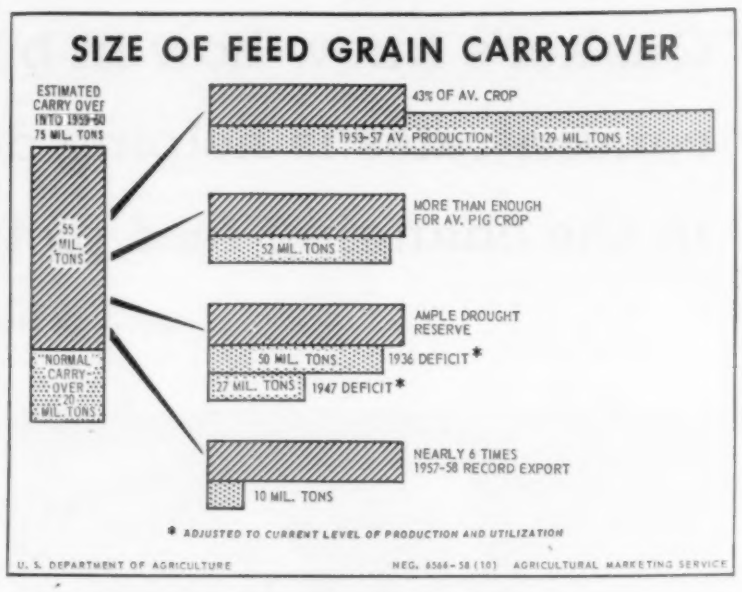
Dept. FS-12, 618 W. Jackson Blvd., Chicago 6, Ill.

LA BUDDE

MILWAUKEE, WIS.

MALT SPROUTS
BREWERS GRAINS
DISTILLERS GRAINS
BEET PULP
AND 44 OTHER FEEDS

Figure 1


SIZE OF FEED GRAIN CARRYOVER
ESTIMATED CARRY OVER INTO 1959-60 75 MIL. TONS
55 MIL. TONS
"NORMAL" CARRY-OVER 20 MIL. TONS
43% OF AV. CROP
1953-57 AV. PRODUCTION 129 MIL. TONS
MORE THAN ENOUGH FOR AV. PIG CROP
52 MIL. TONS
AMPLE DROUGHT RESERVE
50 MIL. TONS
1936 DEFICIT*
27 MIL. TONS
1947 DEFICIT*
NEARLY 6 TIMES 1957-58 RECORD EXPORT
10 MIL. TONS
* ADJUSTED TO CURRENT LEVEL OF PRODUCTION AND UTILIZATION
U. S. DEPARTMENT OF AGRICULTURE
NEG. 6566-58 (10) AGRICULTURAL MARKETING SERVICE

Feed Grain Stocks Dominate Outlook for Next Few Years

WASHINGTON—A look into the U.S. feed grain outlook for the coming few years was taken by the U.S. Department of Agriculture as part of its Feed Situation outlook issue for 1959.

The USDA weighed the nation's huge carryover of feed grains in prospect for 1959-60 against anticipated needs and concluded that the "big stocks of feed grains that will be on hand for 1959-60 and the years that follow dominate the outlook for feed grains over the next few years. They will play a major role in the over-all feed situation, whether we have years of short crops, or average or better-than-average crops."

If present prospects for feed grain production and utilization for 1958-59 are realized, the carryover into 1959-60 will total about 75 million tons, 25% over 1957-58 and nearly four times the 20 million tons carried over in 1952.

About half of the 55-million-ton buildup in stocks since 1952 has come from the bumper feed grain crops of 1957 and 1958, the report said. The

(Continued on page 75)

Results never before thought possible

The River Rest Large White Meat Cross is the heaviest white turkey distributed nationally, today!

The River Rest Small White Meat Cross is the only turkey available nationally that is specifically designed for fryer-roaster production.

Now, you can make more money in the turkey business . . . because River Rest research brings you two new meat crosses . . . new strains that produce results never before thought possible. Many years of painstaking pedigree work and progeny testing are behind these new meat crosses . . . developed through reciprocal recurrent selection breeding. River Rest Meat Crosses combine maximum finish and yield with minimum production costs. Officially franchised River Rest Hatcheries are the only suppliers who have access to the strain crosses necessary to provide you with growing stock.

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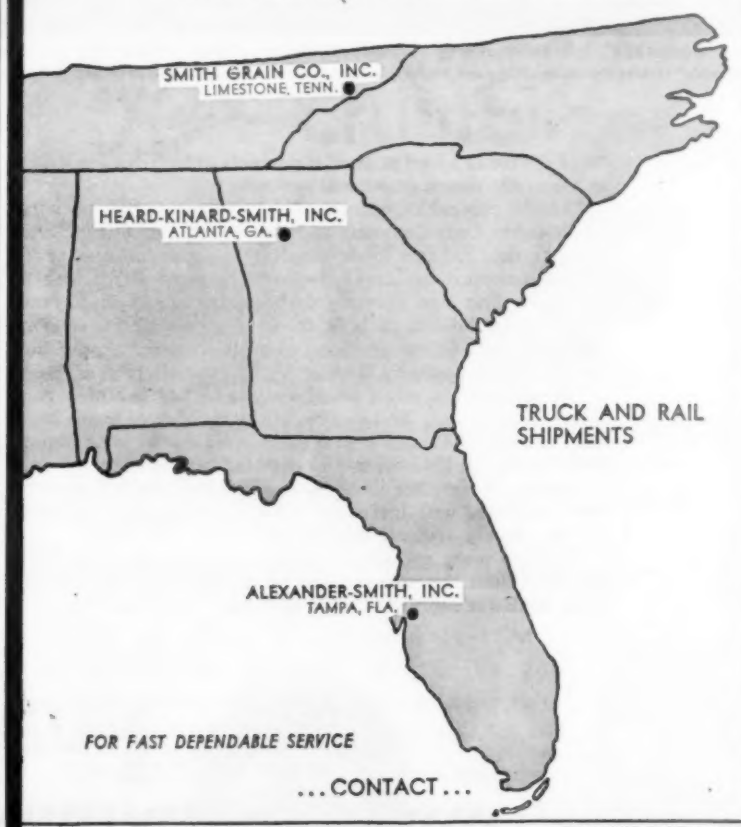
GRAINS — GRAIN PRODUCTS — PROTEIN MEALS
CITRUS AND BEET PULPS — FEED INGREDIENTS



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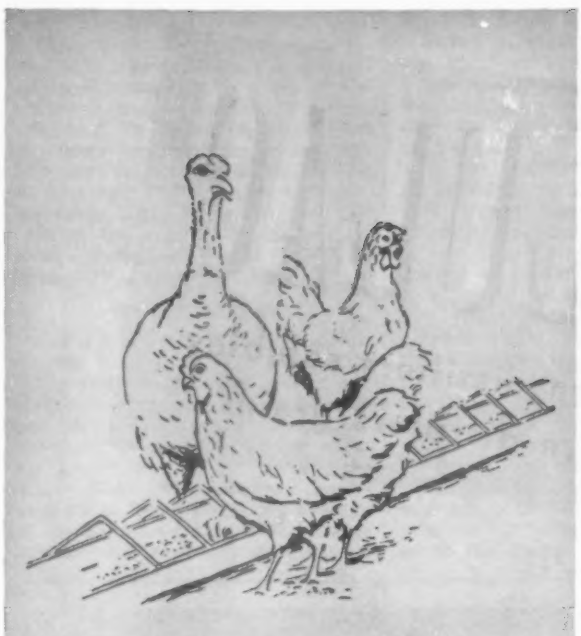
Angeles, Calif.



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makes barley better for birds at lower cost than corn diet.

1956 . . . Dawe's began research and development on the application of enzymes to nutrition.

1957 . . . April . . . Washington State College reported starch-digesting enzymes improved nutritional value of barley in poultry feeds.

1957 . . . July . . . Dawe's publicly announced DaweNzyme as the first commercially available enzyme system for feed application.

Investigate the economic advantages of fortifying your feeds with DaweNzyme today. It is available immediately in any quantity.

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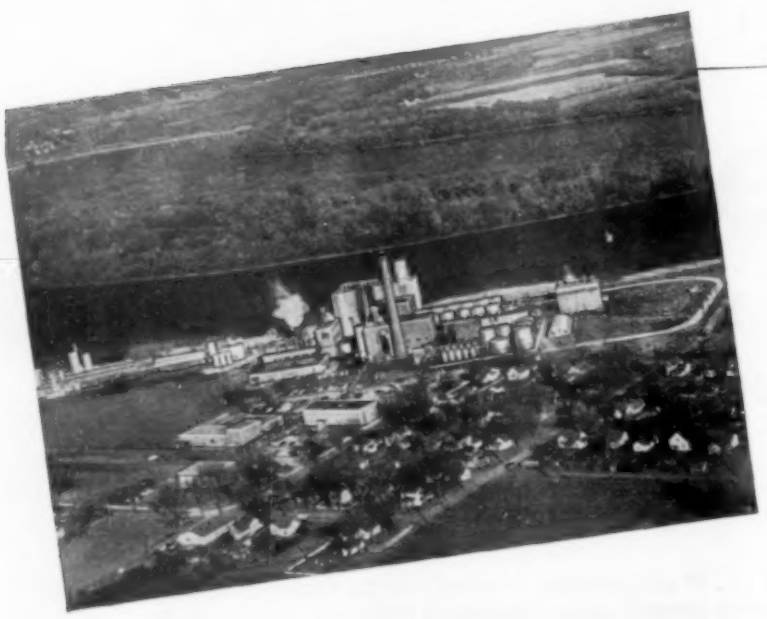
DaweNzyme
PERFORMING COMMERCIALLY

DaweNzyme is long out of the laboratory stage and into commercial usage. Hundreds of carloads of top-performing feeds are being fortified with DaweNzyme, the starch-splitting enzyme system which makes barley the approximate of corn in growth, feed efficiency and palatability.

DaweNzyme extensively tested by state experiment stations and proved commercially, is an economic boon to those where barley is available for less than corn. With DaweNzyme, barley can be the principal grain without the former penalties of lowered growth and feed efficiency, compared to corn.

DaweNzyme is easily incorporated in the feed formula. It is a dry, free-flowing, stable material. No special handling is involved and ordinary mixing procedures are followed.

While attention has been focused on barley, tests show small, but consistent, improvements in the utilization of corn itself, when supplemented with DaweNzyme.



IT'S SURE TO BE HERE EVERY WEEK OF THE YEAR

Though seasons do change, not so with the supply of Solulac. It's produced and available throughout the year. So formulate your feeds with Solulac and be sure of a supply that's CONTINUOUS. You're never without Solulac's high nutritional values . . . its unidentified growth factors . . . its vitamins. Guaranteed to be free flowing. You can get it in 50 and 100 pound bags or bulk carloads. Write, wire or phone any time. Grain Processing Corporation is also a continuous source of corn distillers dried grains..

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Primary Fermentation Products

Riboflavin — Vitamin B-12 — Bacitracin — GP-101, source of whey and other unidentified growth factors.

other half was built up more slowly during the years 1952-56.

Since a certain amount of carryover is necessary, USDA has attempted to determine what part of the 1959-60 carryover can be considered "surplus." To do this, it has divided the carryover into three parts: (1) The essential working stocks needed to take care of processing and feeding needs in the transition from one crop to the next. (2) Desirable reserve stocks to meet emergency needs. (3) Surplus stocks.

Division Difficult

USDA admits that making such a division is difficult. "The designation of the relative quantities in the three categories is more or less flexible depending on the criterion used in determining the desirable size of working stocks and reserve needs," the report said. "Whether these stocks turn out to be an increasing problem of disposal or a desired reserve, they are now the most significant single factor in the outlook for feed and livestock during the next few years."

Shown in Figure 1 is a comparison of these stocks to an annual year's production, feed consumed by the combined spring and fall pig crop and the deficit in a severe drouth year.

In this comparison, USDA makes an allowance of 20 million tons for "what might be considered a 'normal' carryover." Stocks over this "normal" figure—55 million tons—may be considered as available for use without reducing carryover to an undesirably low level.

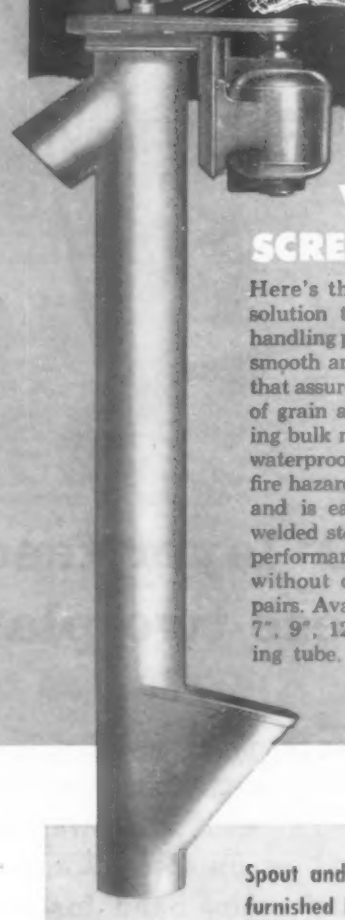
While USDA points out that the 55 million tons might not be entirely surplus stocks—they could be a desirable reserve, depending on circumstances during the coming few years—they are considered for comparison as surplus.

The 20-million-ton "normal" carryover set by USDA includes an allowance for carryover of corn designated in the Agricultural Act of 1954

RESEARCH SUPPORT—Turkey management research at Colorado State University will be supported for a second year by the Colorado Turkey Federation. In the picture Floyd Gingerich (second from right), Keenesburg, Colo., president of the turkey organization, presents a check for $750 to Dr. S. S. Wheeler, director of the Colorado experiment station. Looking on are Ted Hartung (left), extension poultryman, and Dr. Robert Moreng, chief poultryman for the experiment station. Purpose of the research is to determine floor space requirements for turkey toms and hens in relation to feed and water space. The work is under way at CSU's new turkey pole house. Scientists also will evaluate litter materials, and will compare space requirements of pole sheds versus range rearing.

KELLY-DUPLEX ELEVATORS

The efficient, economical way to handle your grain



VERTICAL SCREW ELEVATOR

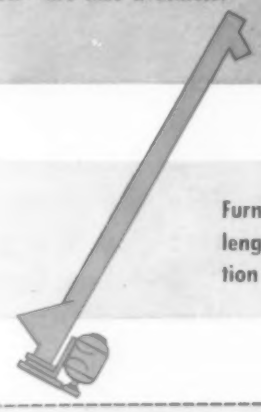
Here's the modern, money-saving solution to any number of material handling problems—an elevator that's smooth and noiseless in operation . . . that assures efficient, uniform delivery of grain and other types of free-flowing bulk materials. It's dustproof and waterproof . . . reduces accident and fire hazard . . . requires less space . . . and is easy to install. Rugged, arc welded steel construction assures top performance year in and year out without costly breakdowns and repairs. Available with choice of 4", 6", 7", 9", 12" or 14" diameter conveying tube.

LOW COST BUCKET ELEVATOR

Engineered for quiet, high speed operation . . . this machine elevates material smoothly and cleanly—delivers peak capacity—and assures positive discharge without back-legging. It has rugged steel and ball bearing construction throughout—is compact and self-supporting—and is completely weather and dust tight. Built to meet your needs, it can have a capacity from 100 to 3300 bushels per hour—can be built to any exact height up to 100 feet—and can have either one or two intakes. 2 and 3 way discharge valves—and distributors with four or more outlets—are also available.

Spout and hopper furnished in any desired position

Drive unit can be installed at either end of elevator



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Yes, I'm interested in the KELLY DUPLEX machinery checked at the right. Please send me full information on these machines without any obligation.

☐ Send me information on Free Mill Planning and Layout Service

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as 15% of normal domestic consump- | of Census estimates that population |

Riboflavin — Vitamin B-12 — Bacitracin — GF-101, source of whey and other unidentified growth factors.

Did you know you can tailor nf-180® layer feed to every egg producer's needs with these two plans?

There are two different approaches these days to the use of nf-180 in layer and breeder rations. Both work! And their flexibility lets you meet the needs of almost every situation.

Most poultry raisers agree that nf-180 *is* all it's cracked up to be . . . that it practically outdates all other poultry feed medications. But some flock owners champion one method of using nf-180 while an equally enthusiastic group prefers another way. Now you can satisfy both.

Quite a few poultrymen — especially the big commercial operators—prefer to feed a continuous low level of nf-180 to provide 25 grams furazolidone per ton of complete feed. They like the way it improves overall flock performance, stimulates egg production, and improves feed-egg ratios. This is the popular *Penny-a-Month* Low Level program.

Other egg producers are sold on nf-180 medicated feeds for periodic use to knock out disease and stress troubles. This is the *Week-a-Month Protective Feeding plan.* It is remarkably effective for fighting laying slumps, off-feed problems, disease outbreaks. An nf-180 booster feed (containing 100 grams of furazolidone per ton) is the ideal feed for this plan.

You'll have requests for information on nf-180 medicated feeds to fit both plans. So Hess & Clark has prepared two kits . . . one for each plan . . . which give the details you'll need to answer inquiries and set up specific programs for customers. Send for both the "Penny-a-Month" and "Week-a-Month" kits now, so you'll be fully armed with this versatile, flexible way to fill the feed and management needs of your poultry customers. The kits are free, of course.

NT-8-6

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tal investments in machinery and in

Vitamin C Found to

as 15% of normal domestic consumption and exports. This is currently around 500 million bushels. The carryover allowance for the other feed grains is taken at about the 1950-54 average—oats, 250 million bushels; barley, 75 million bushels, and sorghum grain, 25 million bushels.

A look at the chart shows that the 55 million tons remaining are 43% of an average crop, more than enough for an average combined spring and fall pig crop and plenty to meet even the most severe drouth of the past 50 years and still meet the feed utilization needs of recent years. As it relates to exports, the "surplus" is about six times the record exports for 1957-58.

Changes in Yield

Also entering into the picture for coming years are prospective changes in acreage and yield. Of these, trends in yield have a more significant place in the longer term outlook, USDA says.

Acreage planted to corn next year is expected to be up from this year's level of 74.4 million acres to around 77 or 78 million acres. This is expected because the Acreage Reserve Program has been dropped and farmers voted down allotments Nov. 25. No major changes in acreage seem profitable for the other feed grains. With a near-normal growing season, it can thus be expected that production may be down about 10% next year.

Looking at yields, however, the USDA says that over a longer period, trends in yield could have a significant effect on the acreage-production-utilization balance. From 1937-41 to 1953-57, the average yield of the four feed grains jumped from .66 ton to .86 ton per acre, an increase of 30%. Feed grain acreage, meanwhile, was practically the same in both periods. Thus, increasing yields gave practically the same percentage increase in production.

During the same period, population went up from 130 million to 164 million, an increase of 26%, or slightly less than the percentage increase in per-acre yield of feed grains.

Production of livestock and livestock food products, in terms of livestock production units (excluding mules and horses) increased from 133 million to 172 million, an increase of about 30%, again in line with feed grain yields.

"To assume these trends would continue over the next 15 or 20 years would be an oversimplification of the longer term outlook for feed grains and livestock," the USDA reports. "It is of interest, however, to consider their implications on the longer-term prospects for the livestock feed balance."

Between now and 1975, the Bureau of Census estimates that population of the U.S. will increase about 30%. This would be a little greater than the 26% increase from 1937-41 to 1953-57. If yields continue their upward trend of the past 20 years, they would continue to increase relative to population.

"However," USDA reports, "livestock production is increasing at a more rapid rate than population as per capita consumption of livestock products is trending upward. Rates of feeding per production unit may trend downward a little if increasing efficiency lowers the feed required per unit of livestock production.

"Since the 1937-41 period, the rate of feeding per livestock production unit has increased a little and the rate per grain-consuming animal unit has gone up about 17%. This reflects, in part, the increased feeding of grains and other concentrates to livestock to obtain the marked increase in output per head that has been attained over the past 20 years. In the years ahead, however, some over-all increase in output of livestock and livestock products per unit of feed may be attained."

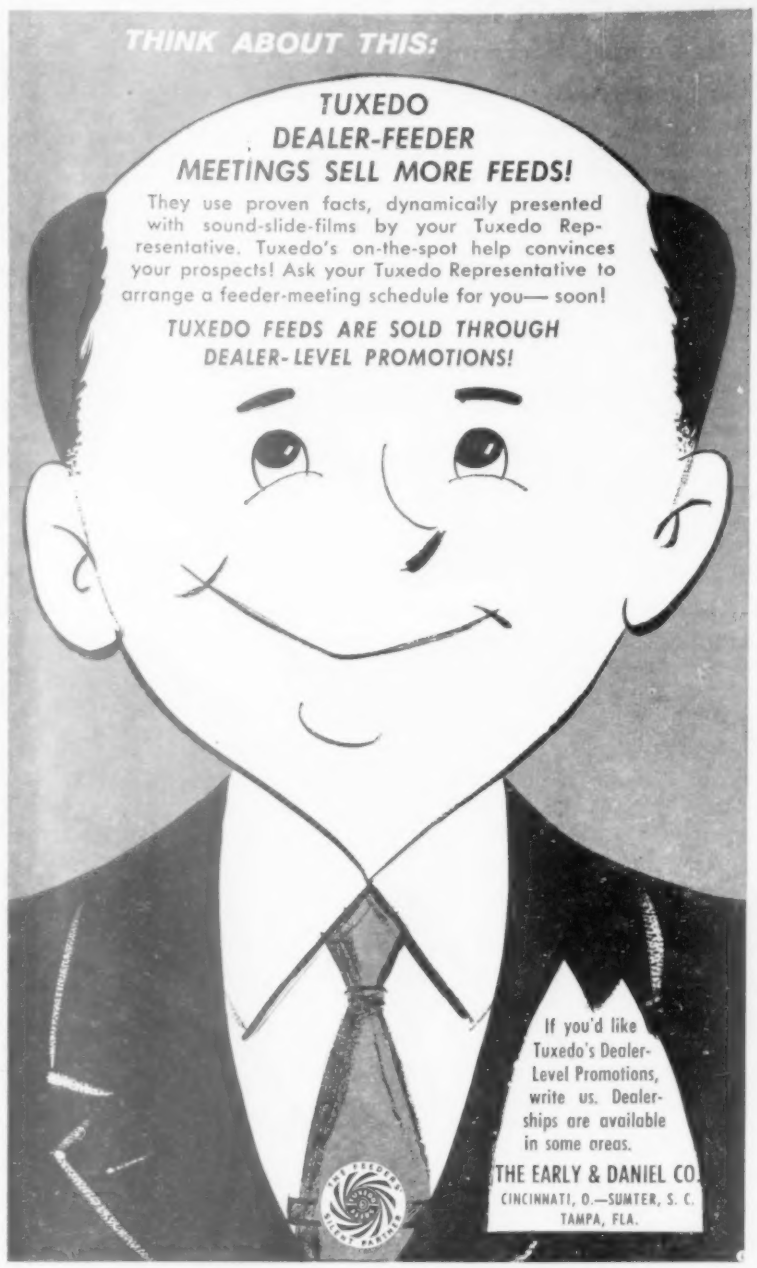
These trends indicate, USDA said, that population and per capita consumption of livestock food products would continue to increase during the next two decades without requiring an increase in feed grain acreage, because of the steadily increasing yields per acre.

"These projections, of course," USDA said, " do not take into account disposition of the large stocks of feed grains now on hand."

Named Traffic Head

NEW YORK—Neal Van Kirk has been named general traffic manager of Commercial Solvents Corp., announced W. Ward Jackson, vice president.

Mr. Van Kirk was formerly associated with Darling and Co. in a series of traffic management positions. Prior to coming to New York to join Commercial Solvents, he was located in Chicago.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These Active Factors Can Be Added to YOUR FEEDS At Little or No Extra Cost

You will be hearing more and more about Enzymes in nutrition. Why not have them in your feeds now?

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WESTERN YEAST COMPANY

Chillicothe Illinois

Associate Credit Needs With Farm Efficiency, FCA Head Declares

BOSTON—As farmers strive to increase their efficiency their need for adequate credit continues to grow in amount and importance, said Harold A. Miles, deputy governor and director of short-term credit services of the Farm Credit Administration at the annual meeting of the National Milk Producers Federation, at the Statler Hilton Hotel here.

"Dairymen as well as other types of farmers are growing fewer in number," Mr. Miles explained. "Those that stay on the farm have to increase their income by improving their efficiency or by supplementing farm income with off the farm jobs. Those that choose the way of increasing efficiency look to improving quality of their herds and dairy products and substituting capital investments in machinery and in better building and farm arrangements for labor. To make use of some types of machinery many farmers find they need larger farms.

"Farmer-members of production credit associations borrowed nearly $2 billion from these credit cooperatives during the 12 months ended June 30, an increase of 23%," Mr. Miles said.

"The relatively new intermediate term loans of production credit associations with maturities up to five years are particularly suited to the needs of modern dairy farmers who need to make capital investments in such things as bulk milk tanks and milking parlors or enlarging and improving their herds."

He said that the use of this type of loan is growing as farmers learn more about it. As of June 30, 1958, members of production credit associations had over $100 million in loans outstanding with maturities between one and five years.

Vitamin C Found to Reduce Egg Breakage In Colorado Experiment

FT. COLLINS, COLO.—A small amount of vitamin C (ascorbic acid) in the feed of laying hens during the summer will result in fewer broken and cracked eggs, reports Dr. Paul Thornton, assistant poultryman with the Colorado State University Agricultural Experiment Station.

A report from the station pointed out that egg breakage during summer months is a major problem for the nation's poultry industry. All told, the loss amounts to an estimated $100 million.

Hot weather normally causes laying hens to slow down in body activity. This leads to lower feed consumption, and less calcium is available for building strong shells. This in turn means a greater breakage problem, the report said.

Dr. Thornton found that as little as an ounce of ascorbic acid per ton of feed will increase egg shell thickness during the summer months. In almost every case, egg breakage can be reduced by 50%, and sometimes more, the research indicated. At present vitamin C is priced at about 30¢ an oz.

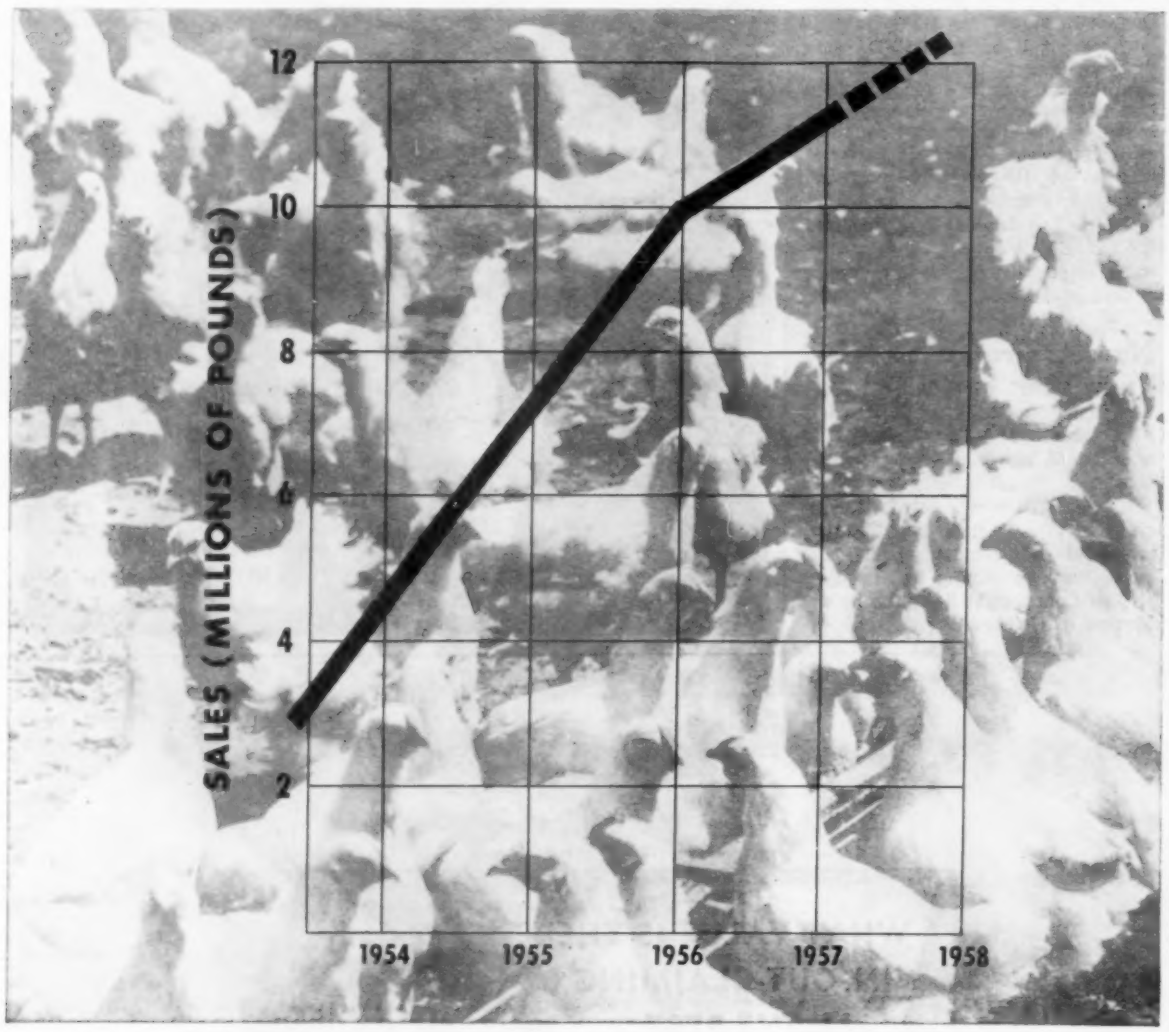
Dr. Thornton cautioned poultrymen that too much ascorbic acid can have an adverse result. One ounce per ton of feed will give the best results, he said.

For the present the poultry scientist does not advise the use of ascorbic acid in the winter since there is no evidence yet that it is beneficial during cold weather.

Currently research is underway to determine the mechanism by which ascorbic acid affects egg shell thickness.

Edward Calabrese

JOINS WHITE—Edward Calabrese has joined the agricultural division of White Laboratories, Inc., Kenilworth, N.J., announced Vernon L. Hill, director of the division. Mr. Calabrese will be headquartered in Chicago as midwest representative for Lipamone. Mr. Calabrese has previously been associated with feed additive and animal health products.



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Fat and Protein Digestion Aided by DL-Methionine

Tests on effects of six different amino acid supplements on the changes in pancreatic enzymes of animals showed that methionine had the most beneficial effect. Check animals received "high-value" casein protein. Amino acid supplements used were isoleucine, methionine, phenylalanine, leucine, lysine and tryptophan. Phenylalanine and isoleucine increased protease activity. But methionine alone increased both lipase and protease activity of the pancreatic enzymes. This indicates the additional value of methionine as an aid to digestion of fats and proteins in the ration.

Good Ration Encourages Better Use of Minerals

Greater efficiency in assimilating and utilizing minerals was shown by high-producing dairy cows than by poor milk producers, in recent indoor feeding tests. Cows on the most nutritious total ration produced the most milk and also made the most effective use of calcium and phosphorus. Many dairy farmers have obtained similar results by "free-choice" feeding of MOREA® Liquid Feed Supplement along with other nutrients in a balanced ration. This highly nutritious liquid feed supplement promotes more effective use of minerals and higher milk production.

Worthwhile Reading

The growth of U.S.I. as a supplier of chemicals is featured in a new, 40-page, full-color book now available. U.S.I. is a major division of National Distillers and Chemical Corporation. U.S.I. facilities, research and service are described in this attractive book. For your free copy, write U.S.I.

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The sun smiled on farmers in 1958. The result was the biggest all-crop production ever attained, at 117 per cent of the 1947-49 average, well above the previous record year of 1948. And the average yield per acre reached a new high, on the smallest planted acreage in about 40 years. The year set a new record in feed grain production, up 8 per cent from last year, and oil-seed production was up 18 per cent. Stocks of grain, and oil-seed crops on hand this fall are also at new highs. With livestock numbers increasing, 1959 can well be a record year for feed consumption.

Heat, moisture, insects, artificial drying, and natural variations in grain quality all affect the feeding value of grain.

Need Vitamins

Much of the feed grain going through our mills this year will need extra amounts of supplemental vitamins to provide top feed value. Long-stored grain will be low in vitamin A and E values. And much of the grain artificially dried on the farms will also be low in these vitamins. U.S.I. vitamin A and E supplements will help you protect the reputation of your feeds.

The record large stocks of wheat on hand will make wheat more of a feed grain than usual. Again, when wheat, barley or sorghum is used to replace corn, a vitamin A supplement such as U.S.I. Permadry is essential to maintain top feed value.

Check Formula Changes

The tremendous soybean crop augurs well for 1959 supplies of high-protein feeds. It also points up the need for DL-methionine supplements in a huge tonnage of broiler, poultry and hog feeds.

Whatever changes you plan to make to fit your feed formulations to the season, check U.S.I. for your supplement supply!

Vitamin E Helps Animal Absorb More Vitamin A

Recent research indicates that animals are able to retain far more vitamin A, when their feed contains vitamin E supplements. When vitamin E was fed in the form of tocopherol in oil, milk or water emulsion, absorption of vitamin A from food in the intestine and storage of vitamin A in the liver were both greatly increased. This absorption occurred in the lymph and the vitamin A content of the blood was changed only slightly.

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No. 7286—Bag Stacker Bulletin

One man push-button loading of boxcars and trucks is the subject of Bulletin No. 75, being offered by Power Curve Conveyor Co. The illustrated publication contains information on all of the units that make up the conveyor. For copies, check No. 7286 on the coupon and mail to this publication.

No. 7290—Portable Air Vibrator

A portable air vibrator that can be attached to almost any type of frame, bin, box or table without bolts has been announced by the Cleveland Vibrator Co. The 3 in. VGV air vibrator has jaws that open to 2 in. and is attached by tightening the clamp which is a part of the unit. The vibrator has an eye through which a hoist hook may be attached for ease in moving the vibrator around the shop. The unit weighs about 90 lb. and develops 3,600 vpm. at 60 psi. with air consumption of approximately 20 cfm. Check No. 7290 and mail for details.

No. 7284—Hormone Implants

A new line of natural hormone implants, designed to promote higher weight gains in livestock finishing, has been announced by E. R. Squibb & Sons. The pellet implants, Synovex-S (for steers), Synovex-H (for heifers), and Synovex-L (for lambs), were developed particularly for each

animal and contain those natural hormones which stimulate higher weight gains, the company claims. The products were designed for use with the Synovex "Implanter," an all-metal instrument for implantation. For details, check No. 7284 and mail.

No. 7291—Animal Health Booklet

A 28-page booklet, entitled "A Practical Approach to Fluid Therapy in Veterinary Medicine," is available upon request from Abbott Laboratories Veterinary Department. The booklet contains information on tests made by two Abbott scientists. For copies, check No. 7291 on the coupon and mail to Feedstuffs.

No. 7285—Pneumatic Unloading System

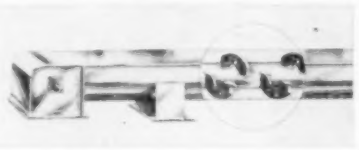
The availability of a bag-dump pneumatic unloading system for bulk trucks has been announced by Sprout, Waldron & Co., Inc. According to the company, the system is low-cost and is completely self-contained and comes in both do-it-yourself and factory installed form. Included in the system is a 5MV blower, completely machined 14x10 airlock feeder with manifold, hydraulic variable speed drive with motor and pump and accessories. Check No. 7285 on the coupon and mail for further information.

No. 7292—Punched Card Reader

How pre-punched formula cards can control blending operations automatically is explained in a bulletin on the "Select-O-Weigh" system with punched card reader offered by Richardson Scale Co. The bulletin, NP-2, is illustrated and details of a punched card, a punched card reader and a control panel are given. For copies, check No. 7292 on the coupon and mail.

No. 7288—Conveying Equipment

Conveying equipment to handle almost every type of material has been announced by Yancey Sales, Inc. The new equipment moves the material through a trough-type housing with a series of drag-blade flights mounted on an endless chain. Material can be discharged at any point. Called Kleen-Flo, the conveyor delivers "more material" with "less horsepower," the company says. For details, check No. 7288 on the coupon and mail.



No. 7287—Filling Machine Feeder

Model "CA Whiz-Lifter," a device for feeding one or more filling machine operations, has been introduced by Frazier & Son. The unit is designed to handle almost all types of product from solids to powders, the company says. The unit has interlocking buckets that travel on a horizontal plane at point of fill. The Whiz-Lifter can feed more than one machine as well as discharge from either side or from alternate sides, the company says. For more complete information, check No. 7287 on the coupon and mail to this publication.

No. 7280—Bulk Storage Tank

A self-contained bulk feed storage tank, including an internal auger for elevating or mixing, has been announced by the Columbian Steel Tank Co. Called the "Mix-O-Matic" bulk tank, the unit eliminates the structural steel requirements for gravity discharge, the company says. The internal auger raises the feed, which is then spouted out by gravity into feeders or feed buggy. There is also bottom loading so that any truck can load feed into the ground level hopper, from where the feed is moved by the horizontal and vertical augers. The company said that the internal auger permits mixing while the tank is being filled, helping to prevent concentrates from settling out, helps prevent bridging of feeds and can be used to remix material if necessary. Check No. 7280 and mail to Feedstuffs.

No. 7293—Tramrail Booklet

A revised issue of Cleveland Tramrail Engineering and Application, No. 2008-N, has been released by the Cleveland Tramrail Division of The Cleveland Crane & Engineering Co. Detailed studies of track design, peening and stresses are given and various types of carriers, cranes, tractors, track switches, buckets, grabs and electrification are covered. For copies, check No. 7293 and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7238—Hog health handbook, Dr. Salsbury's Laboratories.

No. 7239—High-speed sewing head, Union Special Machine Co.

No. 7240—Feed supplement, Peter Hand Foundation.

No. 7241—High-capacity grain dryer, Behlen Manufacturing Co.

No. 7242—Scale data sheet, Richardson Scale Co.

No. 7243—Steel building literature, Butler Manufacturing Co.

No. 7244 — Formula feed folder, Sohio Chemical Co.

No. 7245—Materials handling units, Daffin Manufacturing Co.

No. 7246—Poultry disease booklet, Sterwin Chemicals, Inc.

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COMPANY CHANGES—Lindsey-Robinson & Co., Roanoke, Va., announced five company changes in its Fair-Acre Feeds division. Thomas E. Banks, formerly farm service agent at Gainesville, Ga., has been promoted to district sales manager with headquarters at Tarboro, N.C. He graduated from Virginia Polytechnic Institute and worked with Lindsey-Robinson's farm service department. Other assignments as farm service agents went to George K. Morris, James C. Gray, Donald E. Tucker and Marvin Wilson. Mr. Morris is a graduate of the University of Georgia. He will service the Gainesville area, replacing Mr. Banks. Mr. Gray, who has been assigned to the Hickory, N.C., area, is a poultry husbandry graduate of the University of Tennessee. Mr. Tucker will be farm service agent for Farmville, Va., site of the new Fair-Acre egg marketing service. He is a University of Georgia graduate. Mr. Wilson has been moved to the Monroe, N.C., area. He also graduated from the University of Georgia.

chure, U.S. Industrial Division, National Distillers and Chemical Corp.

No. 7248 — Animal health folder, Merck & Co., Inc.

No. 7249 — Poultry health folder, Merck & Co., Inc.

No. 7250—Automatic egg counter, Hawkes Cage System.

No. 7251—Poultry de-winger, Dakota Ranches.

No. 7252—Hammermill literature, Prater Pulverizer Co.

No. 7253—Folder on "Penstrep" line, Merck & Co.

No. 7254—Texturing material, Philip R. Park, Inc.

No. 7255—Ventilation system, Rolfes Grain Aeration Companies.

No. 7256—Story on feed mills, Sprout, Waldron & Co., Inc.

No. 7257—Mailing piece on pulverizers, Prater Pulverizer Co.

No. 7258—Weigher, filler bulletin, Richardson Scale Co.

No. 7259—Stone detector, Seedburo Equipment Co.

No. 7260—Cattle health product, Merck & Co., Inc.

No. 7261—Equipment brochure, FM Engineering Co., Inc.

No. 7262—Custom feed milling booklet, Prater Pulverizer Co.

No. 7263—Hammer mill, Sprout, Waldron & Co.

No. 7264—Poultry feeder, Oakes Manufacturing Co.

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No. 7266 — Magnetic separator housing, Eriez Manufacturing Co.

No. 7267 — Pneumatic conveying bulletin, The Day Co.

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No. 7269—Pneumatic handling system, Sprout, Waldron & Co., Inc.

No. 7270 — Automatic typewriter readout, Richardson Scale Co.

No. 7271 — Gross bagging scale, Richardson Scale Co.

No. 7272—Impact mill, "Entoleter" Division, Safety Industries, Inc.

No. 7273—Revolving valve, Gerber Sheet Metal, Inc.

No. 7274 — Dryer control panel, Campbell Dryer Co.

No. 7275—Booklet on fats in feeds, Monsanto Chemical Co.

No. 7276—Automatic feed weigher, Seedburo Equipment Co.

No. 7277—Poultry feed brochure, Mechanical Poultry Feeder Assn.

No. 7278—Report on bulk handling, Towmotor Corp.

No. 7279 — Metal-free slat floor, Munro Egg Automation Co.

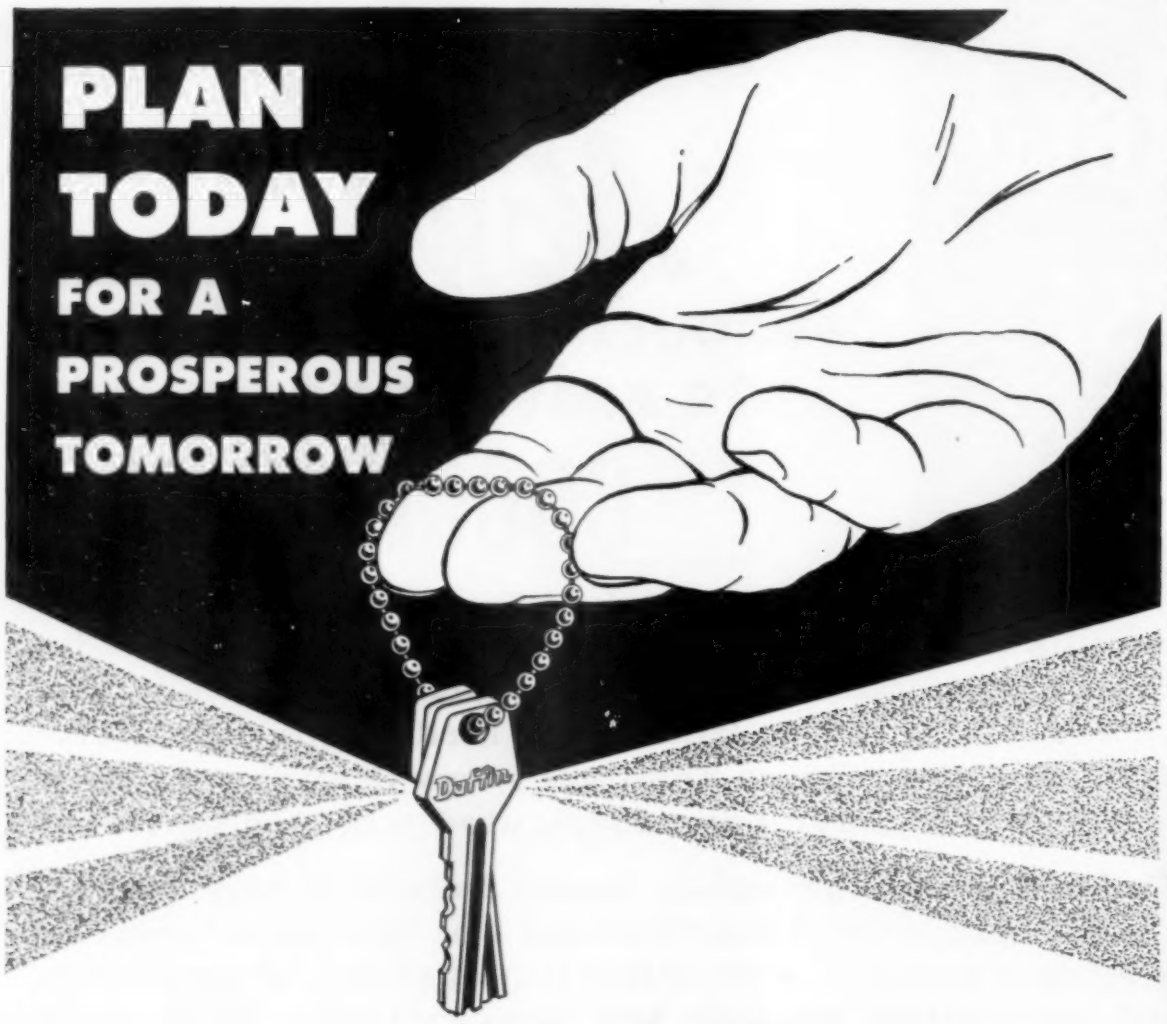
No. 7281—Bin level indicator, Roto-Indicator.

No. 7282—Antibiotic technical bulletin, Merck & Co., Inc.

No. 7283 — Rotary batch blender, Munson Mill Machinery Co.

Canada Reports Boost In Feed Shipments

WINNIPEG—Shipments of primary or concentrated feeds in Canada in September climbed to 35,884 tons from 29,143 a year earlier, secondary or complete feeds to 217,449 tons from 170,064 and all "other" animal feeds to 48,805 tons from 45,875. January-September shipments of primary feeds increased to 312,292 tons from 263,372 a year ago, secondary feeds to 1,812,842 tons from 1,547,152 and all "other" animal feeds to 389,465 tons from 388,041.



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By T. J. Cunha, Department of Animal Husbandry and Nutrition, University of Florida

A new test for feeders, teachers of animal husbandry and their classes, county agents, nutritionists and workers in veterinary pharmaceuticals. Dr. Cunha is head of the Department of Animal Husbandry, a member of the Nutrition Committee of the American Society of Animal Production and the Swine Nutrient Requirements Committee of the National Research Council. The book includes reports on the most recent scientific feeding studies on swine. 300 pages, 47 tables, 46 illustrations $5.00

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Intended for stockmen, those who counsel with stockmen and for teachers in animal agriculture. First 120 pages particularly of interest to feed trade, as breeding and feeding of livestock are covered. Other chapters have to do with judging, management, marketing, etc. The 1956 edition is the fourth printing, indicating strong demand for this guide. 598 pages, well illustrated, many tables. A practical handbook $8.50

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Grading Factors Must Appear on Certificates

MINNEAPOLIS—The necessity for elevator operators to show grading factors on supplemental certificates is pointed out in a letter sent recently to members of the Northwest Country Elevators Assn. by Pete Stallcop, association secretary.

"Recent conversations with elevator managers reveal that some of them do not fully understand why grading factors must be shown," he said. "Neither do they understand why leaving them off can cost the company a lot of money. Since relatively little grain will be received at elevators during the next few months, it is an ideal time to instruct your managers in the proper way of preparing supplemental certificates."

Mr. Stallcop said the manager should understand that settlements with commodity are based on the Supplemental Committee report—which is distributed each day by the Grain Bulletin. He suggests that elevator managers become familiar with the reports so that they can see the basis of settlement used on a specific date.

The grade factor at the time the warehouse receipt is prepared may not be a pricing factor; however, when the grain is shipped, that same grading factor may be a very important price factor, Mr. Stallcop points out. Since nobody knows in advance what factor will, or will not, be important pricewise at some time in the future, the only safe procedure to follow is to grade all grain accurately and show all factors on the supplemental certificate.

William M. Lacy

DISTRICT MANAGER—William M. Lacy, Rogersville, Tenn., has been appointed district manager for Daffin Feedmobile sales in Tennessee, Kentucky, Alabama and Georgia, announced Irl A. Daffin, president of Daffin Manufacturing Co., Lancaster, Pa. Mr. Lacy joined Daffin in May, 1957, as a sales representative in Georgia. He currently manages a district sales force of seven representatives. The Daffin company manufactures mobile and packaged feed processing plants, pneumatic conveying systems, pelleting machines and industrial batch mixers.

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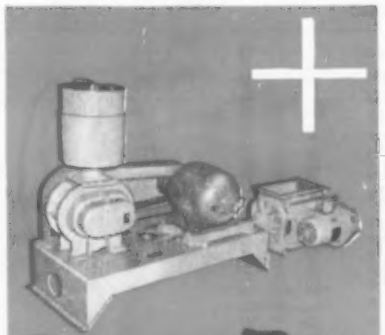

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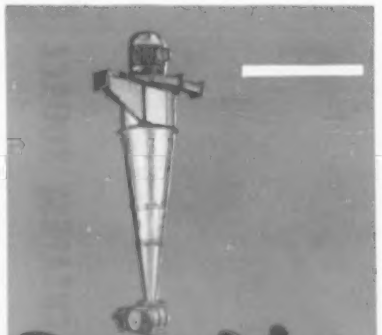
A positive pressure conveying system in which the materials from mixers or other processing machines, as well as from screw conveyors and other handling equipment, can be blown to desired locations. The air source is at the head rather than the tail end of the line. Feedstuffs are introduced into the air stream through an airlock or other feeding device and are pushed to one or more destinations. Material does not pass through the blower.



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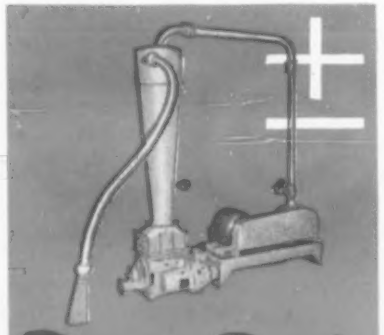
A negative pressure or vacuum system in which the fan is located on the opposite side of the collector from the material conveying line so that the product does not pass through the fan. Pneu-Vac is usually specified where the system must pick up from many sources and convey to one central point. Pneu-Vac can be made to cool, heat, aerate, dry as it conveys. It is entirely dustless and self-cleaning . . . insures complete sanitation and minimizes product contamination.



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Ralston Purina Co. To Include Alaska in Research Fellowships

ST. LOUIS—Research fellowships of the Ralston Purina Co., St. Louis, for 1959-60 will be available to students at the University of Alaska, as well as to students of land grant colleges throughout the U.S. and three agricultural colleges in Canada, according to an announcement by J. D. Sykes, Purina vice president.

Under the program, 10 outstanding agricultural college students will be able to do graduate work. Application blanks and rules of the annual program are now being sent to the colleges. This is the first year the University of Alaska has been included.

Selection of the 10 winning students will be made, as in the past, by a committee of five, composed of a representative from the Poultry Science Assn., the American Veterinary Medical Assn., the American Dairy Science Assn., the American Society of Animal Production and the American Association of Land Grant Colleges and State Universities.

Three fellowships will be awarded in animal husbandry, three in dairy husbandry, three in poultry husbandry and one in veterinary science. The awards will apply to the fields of nutrition and physiology research as applied to dairy, poultry and animal husbandry, and research in transmissible diseases of livestock and poultry. Each fellowship amounts to $1,800.

Mr. Sykes said the purpose of the fellowships is to help train outstanding college students for leadership in the science of livestock and poultry production. The first Purina fellowships were granted for the 1949-1950 school year.

Reports Record Dried Molasses Shipment

DES MOINES—The world's largest single shipment of dried molasses products was made from Des Moines recently by Vy Lactos Laboratories, Des Moines, the firm has announced.

An 80-car train, over three fourths of a mile long, was required to haul the shipment of over 1,500 tons of Omalass and Scotch-O-Lass, dried molasses products manufactured by Vy Lactos. More than 250,000 gal. of blackstrap molasses were used in producing the shipment, according to Bill Rogerson, president of the company. The shipment will go to distributors in over 15 states.

The shipment marked the 29th anniversary of the founding of the company. A. E. (Bert) Sargent, one of the founders, was honored at an open house commemorating his 73rd birthday prior to the shipment.

Three men were driving through the country very late on a pitch black night. Two were in the front seat and the other in the back, half asleep.

Suddenly the driver asked the man in the back to look out the rear window and see who the crazy driver was behind them. For the past 5 minutes he had been trying to let him pass and to top it off, his car had only one light on.

The man looked out the back and then said very excitedly: "No wonder he can't pass you—he's on tracks!"

◆ ◆ ◆

People who address you as "buddy," "chum," "my friend," "pal," "you old rascal, you" are not being overly friendly. They have merely forgotten your name.

◆ ◆ ◆

Her lips quivered as they approached mine. My whole frame trembled as I looked into her eyes.

Her body shook with intensity as our lips met, and then my chin vibrated and my body shuddered as I held her to me.

The moral is, of course: Never kiss with the engine running.

◆ ◆ ◆

Secretary to friend: "He looks like an expense account, but he spends like a minimum wage."

◆ ◆ ◆

A lady we know, who lives in a large apartment house reports that she found a strange black cat meowing outside her door last week. A kindly type, our friend went to the refrigerator, filled a saucer with milk, and set it out in the hall for the cat. Then she went shopping. When she returned, the cat was gone, the milk was gone, and the saucer, clean as could be, contained a note that said, simply, "Thank you." The whole matter has left our lady very unsettled.

◆ ◆ ◆

The Scot said to his neighbor, "So your fourth daughter's getting married, Jock. You must be very pleased."

"Aye," returned Jock, "but the confetti is getting awful dirty."

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SWINE FEEDING

(Continued from page 16)

mum rate of gain, feed efficiency and serum iron were obtained at levels of either 100 or 200 p.p.m. of supplemental ferrous iron. These experiments were made with week-old pigs taken from the sow and fed a 20% solids synthetic milk containing no iron for 4 days prior to being placed on experiment. Dietary iron supplements were made to synthetic milk basal diets fed for 40 days. Iron concentration in body organs was highest at 100 p.p.m. per supplemental iron and apparent absorption of iron was 82%, 72%, and 50% at 0, 10, or 100 p.p.m. levels of supplementary iron.

Protein and Protein-Energy Relationships

Most of the research papers in this area of swine nutrition dealt with the effects of added fat in rations containing varying protein levels, with some work reported on lysine supplementation of different rations, and the effect of additions of fibrous feeds on growth performance and carcass characteristics of pigs.

The research with added animal fat (tallow or lard) in rations for growing-finishing pigs in general indicates that fat additions up to 20% of the ration usually give significant improvement in feed efficiency, while rate of gain may or may not be improved. Increasing the protein level in the presence of added fat increased growth rate in Arkansas experiments, whereas Cornell, Georgia and Purdue results showed no consistent growth response to higher protein levels. Purdue and Arkansas reported they found fatter carcasses or thicker back fat in pigs fed added fat, whereas in Georgia experiments added fat did not significantly increase back fat thickness. Cornell results indicate that protein digestibility may be enhanced by added fat in the ration.

In a Georgia experiment the effect of added fat on B-vitamin requirements of pigs was tested. In the corn-soybean oilmeal basal ration fortified with minerals, salt and vitamins A & D, supplementary pantothenic acid improved growth rate and feed efficiency in the absence of but not in the presence of 10% added tallow, while 6 B-vitamins—thiamine, pyridoxine, riboflavin, niacin, choline and B_{12}—improved growth and feed effi-

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is a high quality rig with a low price tag!

Cut your in-the-field costs with this simple to operate, easy to maintain spreader. Merely set the feedgate opening, start the truck, engage the PTO and start spreading! Material is delivered to the twin spinners over a wide 24" conveyor. Also available with a center dump for stock piling and windrowing.

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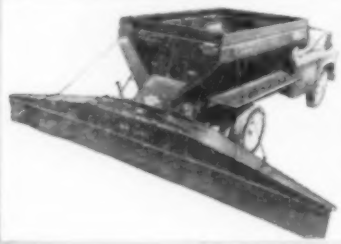
Accurately Blends and Spreads Three Fertilizers At The Same Time!

Now, offer mixed analyses at low, bulk rates!

Three separate feedgates, each with a test box for accurate metering, control the amount of spread. The driver can change the fertilizer ratio for varying soil conditions while in the field! Now, you can spread 3 kinds of fertilizer in one pass through the field . . . whereas, before it took 3 separate trips to do the job! A 7 h.p. gasoline engine drives the twin spinners at a constant rate, regardless of truck speed. The 36" belt-over-chain conveyor is powered from a drive-shaft drive synchronized to truck speed . . . for precise per-acre requirements. Optional equipment meters herbicides and insecticides into the fertilizer . . . spreads all three at once.

A *Powered Flow-Divider* assures even distribution of materials to both spinners, regardless of the position of the L-42S on hillsides or level ground. Customers appreciate this feature as it results in an even crop growth throughout the field.



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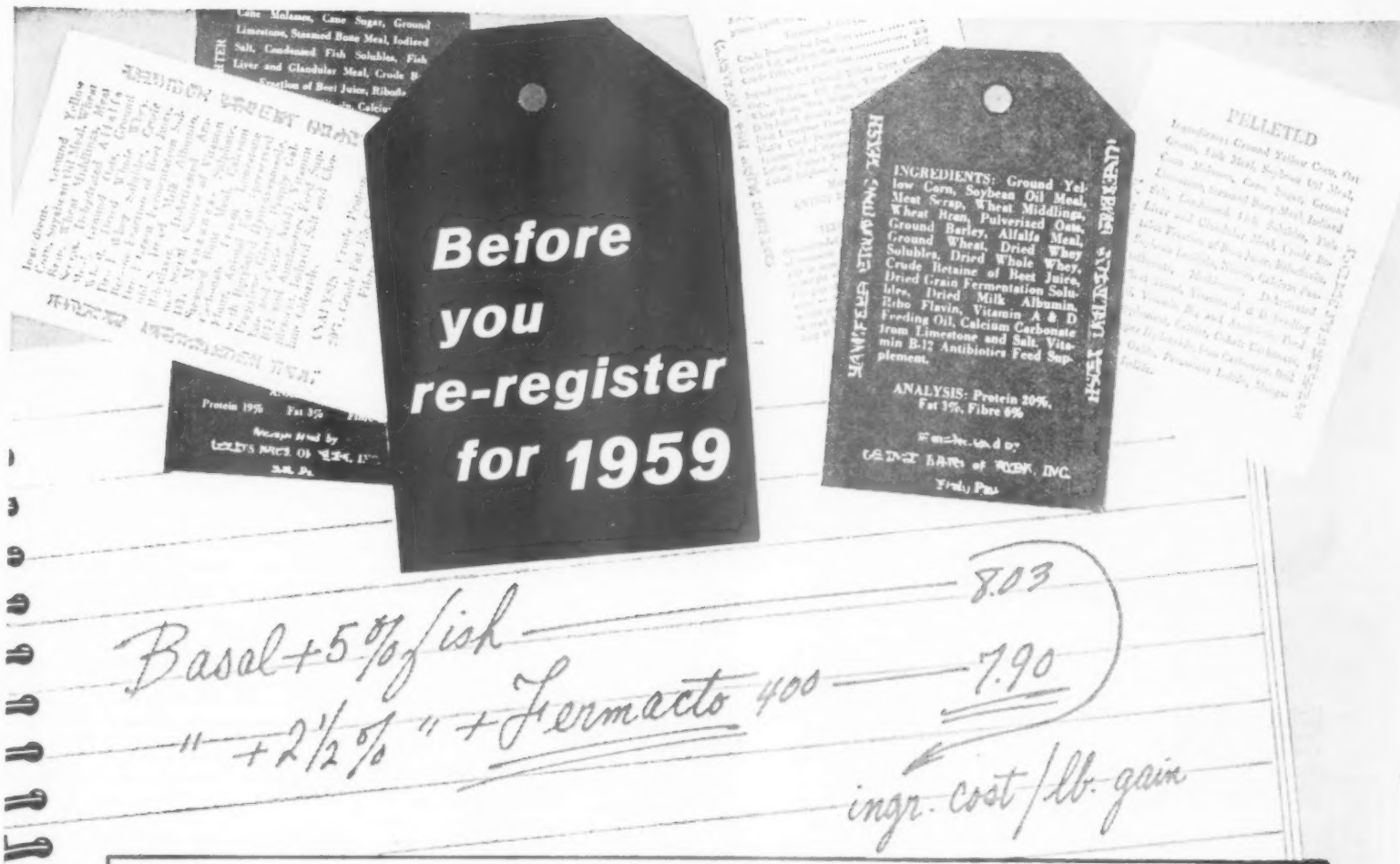
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BROWNSVILLE, TENNESSEE

CHECK "BOUNCES"—A Minnesota cattle feeder sent a check to the Moorman Manufacturing Co., Quincy, Ill., to cover a feed order; the check was returned uncashed because his order was the one that set an all-time high sales record for the company. Sonke Petersen (right), Stewartville, Minn., is shown receiving his uncashed check from Henry A. Haug, Moorman salesman from Plainview, Minn. Mr. Haug received a 1959 model transistor radio as a prize for selling the order. Prizes were also awarded to other company personnel in a guessing contest on the actual time when the record-breaking order would be billed. Winners were Gerald Blume, Jefferson, Iowa, a district sales manager, and William Cornwell, Quincy. Moorman officials said Mr. Petersen's order for "Mintrate for Fattening Cattle" put the company's sales in the first 10 months of 1958 over the high for any previous calendar year.

ciency in both the absence and presence of tallow. Tallow alone increased growth and feed efficiency, and there was a highly significant interaction between tallow and B-vitamins on feed conversion.

Michigan State experiments with fibrous feeds showed that a 40% level of wheat bran gave a statistically significant decrease in back fat thickness, rate of gain, dressing percentage, and percent of fat trim, with an increase in percent lean and primal cuts, and in feed required per pound of gain. Oats at 20 or 40% levels, alfalfa at 10 or 20% levels, or 20% of wheat bran failed to give significant carcass differences.

An Iowa study of lactose vs. corn starch as a carbohydrate source for 2-week-old pigs fed for 4 weeks, showed that lactose gave more rapid and efficient gains than corn starch in a basal ration in which casein was the protein source. Ration type had only slight effects on the numbers of total aerobes, anaerobes and lactobacilli; but on the lactose ration there were reductions in the numbers of coliforms, streptococci, staphylococci, molds and yeasts. The numbers of most organisms increased from duodenal to rectal sections of the intestine with the exception that there were slight decreases in numbers of coliforms on the lactose diet and molds and yeasts.

Lysine

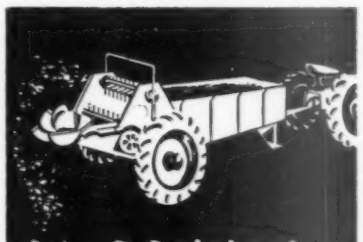
In Purdue experiments, lysine additions were tested in rations with varying protein levels and with either corn gluten feed, corn gluten meal and whole corn or corn and soybean meal as protein sources. In one experiment maximum growth occurred with 0.9% added lysine at all protein levels (10, 15 and 20%), but in a second experiment 0.7% lysine appeared adequate at 10 and 15% protein, but 0.9% appeared necessary at 20% protein. Protein efficiency improved as lysine was increased in the first experiment but leveled off at 0.7% lysine in the second experiment and decreased as the protein level was increased in both trials. Feed consumption was not affected by protein level in the first experiment but decreased as the protein level increased in the second experiment.

In experiments with barley rations, North Dakota researchers reported that lysine additions of 0.2 to 0.8% improved growth rate and feed efficiency. In the presence of meat scraps and blood meal or meat and fish meal, 0.2% lysine improved gains to 200 lb. but feed efficiency was improved only until the pigs reached 100 lb.

Results at Michigan State showed that with the addition of 0.2% creatine (as creatine mono-hydrate) or equivalent amounts of arginine and glycine, the creatine gave a 14% increase in gain and an 8% increase in feed efficiency in one of two trials. The size and creatine content of the right hind superficial flexor and gastrocnemius muscles of pigs were increased by creatine feeding in both trials. There was no advantage from the addition of arginine and glycine in either trial, and metabolism studies indicated that these amino acids were not converted to creatine by the pig. The hematology or size of critical organs of pigs was not affected by any of the ration treatments.

General—Vitamins and Reproduction

Dehydrated forage meals—alfalfa, Coastal Bermuda grass, and sericia lespedeza—were compared for their vitamin A value and growth effects in rations for growing-fattening pigs in North Carolina research. When added to a white corn-soybean oil



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meal basal ration (fortified with minerals and B-vitamins) 3% levels of the forage meals resulted in growth which was equal to that on the basal ration supplemented with 1,021 USP units of vitamin A per pound, but superior to the unsupplemented basal ration, which caused vitamin A deficiency symptoms in the pigs after about 90 days. Ten percent levels of the forage meals gave blood serum vitamin A levels which were equal to the positive control ration and higher than at the 3% levels; however, growth rate was decreased at the 10% levels of forage meals. Liver vitamin A was higher on the positive control group (plus vitamin A) and lower in the negative control groups (no added vitamin A) than in the groups fed three or 10% of the forage meals. There were no significant differences between the three forage meals.

In a very comprehensive and exhaustive study at Michigan State, it was found that pyridoxine (vitamin B_6) supplementation of a practical swine gestation ration containing 0.45 mg. per pound of the vitamin had no highly significant effects upon reproductive performance of sows and gilts or the pre-weaning performance of pigs. Apparently the level of vitamin B_6 (0.45 mg. per pound) in the basal ration is adequate for normal reproduction in swine.

All-plant rations gave as good performance as rations containing both plant and animal materials in a three-year generation study at Ohio State involving 78 litters of pigs, including 12 litters of fourth generation pigs.

Pelleted Rations

Research reported by swine nutritionists at Allied Mills showed that 3-week weaned pigs were 7.5 lb. heavier at 9½ weeks than pigs weaned at 8 weeks but that growth rate and feed efficiency to market weight were essentially the same in both groups. Arsanilic acid (0.01%) and 3-nitro-4-hydroxyphenylarsonic acid (0.0025%) supplementation of growing-finishing rations for pigs gave only small increases in average daily gains with no effect on feed efficiency.

Complete pelleted growing-finishing rations gave the same rate of gain but reduced feed requirement per pound of gain 26.9% as compared with the same rations fed in complete mixed form not pelleted; the same ration fed as free choice whole shelled corn and a pelleted supplement gave slower and less efficient gains. A 54% increase in supplement consumption by free choice-fed pigs as compared with the complete mixed ration greatly increased the cost of gains for free choice feeding.

Restricting Intake

Missouri and Washington state researchers reported results on restricting the intake of sows and gilts on reproductive performance. In Missouri experiments, feeding to hold daily gains of gestating gilts to ½ lb. as compared with more liberal feeding to permit daily gains of 1 lb. per head per day increased the number of pigs farrowed by Duroc but not by Hampshire gilts, but in both breeds the numbers of pigs weaned were increased by limited feeding (6.9 vs. 4.4). As measured by back-fat probe, full-fed gilts maintained condition while limited fed gilts lost condition. Washington State results were similar for six generations of gilts full fed or limited to 70% of full feed. Pigs from these gilts were reversed to give four treatments—low-low, high-high, low-high and high-low. Gilts were slaughtered at 38 days after breeding. Puberty was the latest in the low-high group and weight at puberty, number of silent heats, and services per conception were highest in the high-high and low-high groups. Although ovulation rate was highest in the high-high group, implantation percentage was markedly higher in the low-low and high-low, intermediate in the high-high group and lowest in the low-high group.

In Wisconsin research, the flushing of gilts with glucose at the rate of 1% of body weight daily increased daily gains of gilts (1.6 vs. 1.0 lb.) and the number of corpora lutea (11.8 vs. 9.7) as compared with non-flushed control gilts. All gilts had been limited to approximately two thirds of full feed from 154 days of age until the 8th day of their second estrual cycle following puberty. They were then fed a basal ration at 2.5% of their body weight daily and the flushing period lasted from the 8th day of the second estrual cycle until slaughter at 3 to 4 days following the third estrus.

In Illinois research with 0.01 or 0.02% arsanilic acid in rations for female rats, it was found that although 0.02% arsanilic acid decreased ovulation rate, reproductive efficiency was improved because of increased implantation rates (higher percent copora ludia as viable fetuses) when either level of arsanilic acid was fed.

Nitrate Feeding

Missouri researchers studied the effects of nitrate feeding upon reproduction in swine. When potassium nitrate at levels of 0.0, 0.5, 1.0 and 2.0% was fed to sows starting 35 days after breeding, it was found that blood serum nitrate was markedly increased (from 1-3 mg. percent up to 16), litter size was unaffected, but livability and number of strong pigs were decreased by the higher levels of nitrate feeding. Blood serum from dead pigs showed elevated nitrate levels similar to their dams. Evidence of vitamin A deficiency occurred in only one litter, at the 2.0% level of nitrate feeding. The depletion of liver vitamin A in weanling rats appeared more rapid on rations containing nitrate or nitrite, but histological studies failed to reveal true vitamin A deficiency in spite of a deficiency syndrome.

NEW MILL OWNER

BROWNTON, MINN.—H. P. Jensen, Arlington, formerly partner in the Jensen-Abrahamson Feed Mill, Green Isle, Minn., has taken over the Brownton Feed Mill which he purchased recently.

"Satisfactory" Year For Maple Leaf Feeds

TORONTO — Maple Leaf Milling Co., Ltd., Toronto, noted "satisfactory" progress in its feed division as part of its report to stockholders released recently. (Earnings were reported by Feedstuffs, Nov. 29.)

The firm, which manufactures Cafeteria and Pioneer Feeds, said the progress in the division was made despite an easing of the market earlier in the year due to bumper grain crops in feeding areas.

"The company's dependable, highly-developed distribution system offset the temporary effect by mid-year, and subsequent sales for the feed division were at a much higher level," according to the report.

Also noted by the report were developing trends toward specialization in Canadian farming. "This new agricultural revolution has been of great importance, as premium feed requirements for accelerated growth of poultry and livestock are stepped up. Your company works closely with agriculturalists and nutritionists to create new and improved formula feeds for the Canadian farmer. Federal, provincial and university authorities are consulted, along with chemical and pharmaceutical experts," the report said.

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HELP WANTED

EXCELLENT SIDELINE OR FULL TIME item for salesman selling to feed, grain, farm equipment dealer and farmers. Liberal commissions. Replies will be held confidential. Write Doane Agricultural Service, Inc., St. Louis 8, Mo.

SALESMEN WANTED—MEN CALLING ON feed dealers and elevators to carry well-established calf milk replacer as side line. Top commissions for the right men. Several established territories open. Write Box 5020, Minnehaha Station, Minneapolis, Minn.

FEED SUPPLEMENTS SALES REPRESENTATIVE. College training and knowledge of nutrition and formulation essential. Travel. Salary and commission plus expenses. Territory, Southeastern states. Contact Feed Supplements Department, Borden Co., 350 Madison Avenue, New York 17, N. Y.

SALESMAN FARM FEED

Man 30 to 40 to cover established territory around Des Moines selling highly merchandised quality Farm Seed to dealers for leading AAA-1 firm. Seed experience preferable but not at all necessary. Need aggressive, merchandising minded man specifically experienced calling on dealer trade. This is excellent position; many benefits including profit sharing. Write P. O. Box 624, Milwaukee 1, Wis.

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To sell to feed manufacturers and dealers in Western Pennsylvania and Ohio. Good opportunity for intelligent, aggressive young man who likes to sell.

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Qualified applicant must be graduate in animal nutrition or related science and have at least five years' experience in the feed industry in either sales, feed formulation, or field work.

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NATIONAL SUPPLIER TO FEED MANUfacturer offers excellent opportunity to aggressive sales representative. Salary, commission and expenses. Travel. Degree, knowledge of formulation and nutrition necessary. Location, Midwestern states. Send complete resume to Ad No. 4344, Feedstuffs, Minneapolis 40, Minn.

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MACHINERY WANTED

WANTED—USED PELLET MILL, Robnett's Egg Farm, 2507 54th, Lubbock, Texas.

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 2, Md.

PRATER BLUE STREAK HAMMERMILL— Model G7C or G8C with motor. Price all important. Gasco, 1506 Eastern, Kansas City 26, Mo.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

SITUATIONS WANTED

YOUNG AGRICULTURAL RESEARCHER desires foreign or good domestic position in nutrition, management or sales. Address Ad No. 4345, Feedstuffs, Minneapolis 40, Minn.

AGRICULTURAL CHEMIST WANTS OPportunity in research and development or technical sales or management in the field of feeds, fertilizer or agricultural chemicals. West preferred. Ralph V. Hurlburt, 501 South 3rd Ave., Bozeman, Mont.

MANAGER—EXPERIENCED IN PELLETed feed manufacturing, retail and wholesale sales and distribution, grain handling, B.S. degree, University of Minnesota. Age 34. Address Ad No. 4347, Feedstuffs, Minneapolis 40, Minn.

MATURE, QUALIFIED TERRITORY MANager, 20 years' top sales related feed item. Car, truck load sales—Indiana, Michigan. Seeking better opportunity. Good references. Address Ad No. 4354, Feedstuffs, Minneapolis 40, Minn.

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MANAGEMENT COORDINATOR — SEEKS position, feed or allied lines, qualified as plant manager, production director, general manager. Offers value to progressive organization seeking improvements in operating costs and efficiencies. Specializes in organization structure, project development. Record includes many savings, notably labor. Address Ad No. 4361, Feedstuffs, Minneapolis 40, Minn.

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WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jeffreson City, Mo.

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FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

WENGER HORIZONTAL PELLET COOLer with variable speed drive and fan. Ray L. Jones, Box 326, Benton, Ill.

ATTENTION ALFALFA DEHYDRATORS— Airplane tires and wheel assemblies to fit wagons, trailers and field choppers. Hey Machinery Co., Baldwin, Kansas.

FOR SALE—NEVER USED ERIEZ 20"x32" magnetic pulley; 7,500 lb. Double Ribbon Blender. Best Equipment Co., 1737 W. Howard Street, Chicago 26, Ill.; AMbassador 2-1452.

FOR SALE FOR QUICK REMOVAL — Hammer mills, attrition mills, 9x30 and 9x24 rolls, 29 D Clipper cleaner, 2-wheel bag trucks, corn cutter, mixers, ¼ ton Fairbanks platform scale, also ½ and 2 ton Howe, 7½, 10 and 15 H.P. motors, 12 ft. bag piler, bag sewing machine. Address Ad No. 4346, Feedstuffs, Minneapolis 40, Minn.

THREE SIZE 0-A S. HOWES CUTTERS; one No. 40 Western, No. 3575 slow speed fan driven by 10 H.P. open motor; one double roll stand equipped with four 9"x30" rolls with No. 8 Le Page cut corrugation. These rolls were used for crumbling pellets. This equipment is all in good condition. Address is General Mills, Inc., Feed Plant, Box 2027, Stockton, Cal.

SALE — ALUMINUM TANKS, 4,000 GAL., 2,100 gal.; Spiral Ribbon Mixers 200, 75 cu. ft.; Dewatering presses: Davenport No. 1A, No. 2A, No. 3A, Louisville 8-roll 36"; six Louisville Rotary Steam Tube Dryers 6'x50', 6'x30', 6'x25'; screw conveyor, trough belt conveyor, bucket elevator, bins, etc. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

A COMPLETE LINE OF CONVEYORS, stackers, bucket elevators and other equipment for the feed and grain industries. Also motors, transmission equipment and conveyor belting. Ask for free catalog of the finest used and close-out models at bargain prices. Immediate delivery. Bonded Scale and Machine Co., 124 Bellevue, Columbus 7, Ohio, Phone: HI. 4-2186.

EQUIPMENT FOR SALE BY UNCLE Johnny's Feeds. Good condition: 17 Merchen Feeders type C, 25 lb. to 400 lb. per min.; two B. F. Gump old style bag settlers (Vibrox); one No. 37061 Richardson air-electric bag settler; one No. 3000 S. Howes horizontal mixer with 10 H.P. 220/440 volt dust-proof motor with all electric control; one model E-50 Richardson bagging scale with manual bag clamp; one model No. 2 Eureka knife grinder; one No. 8A Richmond Gyro Whip sifter; one No. 5 Fairbanks standard floor scale; three 42-in. fans, 110-volt motor; one 48-in. fan, 220 volt motor; four No. 14500 Union Special sewing machine heads; one Westinghouse type G, ½ H.P. air compressor. Fair condition: eight platform scales, 1,000 lb. capacity; one model C-20, 20 ft. Elton chain type conveyor (bag stacker); one No. 2A Eureka cereal cutter with motor, starter and drive; one No. 2 Eureka cereal cutter with motor, starter and drive; one Richardson (3 bu.) grain scale; one Richardson (3 bu.) grain scale with sacking attachment. Poor condition: One Richardson (3 bu.) grain scale. Uncle Johnny's Feeds, P. O. Box 236, Houston 1, Texas; Phone Fairfax 3-3181.

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100 H.P. BLUE STREAK HAMMERMILL, direct connected with controls, magnet and collector. Ray L. Jones, Box 326, Benton, Ill.

36" BAUER BROS. ATTRITION MILL with (2) 50 H.P. motors, complete with controls; 15 H.P. blower unit and collector, good shape. $1,650. Quad States Equipment Co., P.O. Box 2508, South Des Moines 15, Iowa.

PNEUMATIC BULK TRAILER WITH 1,000 cu. ft. (20 tons) capacity—8 bins—like new condition. Manufactured by Dorsey. Also, 32' bag or bulk tandem trailer with air unloading system. Like new condition. Address Ad No. 4314, Feedstuffs, Minneapolis 40, Minn.

SIDNEY NO. 347 SEED AND GRAIN cleaner with 40 screens, 9x18 three pair high roll; Blue Streak 6-A-C hammer mill with crusher-feeder, 75 H.P. direct connected motor; Calking 8-30 slurry treater; Gibson oat crusher, 85 bu. capacity. Write Ad No. 4260, Feedstuffs, Minneapolis 40, Minn.

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Feed mill and seed cleaning plant in San Joaquin Valley, California. Barley roll, grinder, California Pellet Mill and cooler, two mixers, and three cleaners in Main Warehouse, attached to which are five grain storage silos of a total capacity of approximately 850 tons. Outside measurements of Main Warehouse, including silos: Approximately 100' x 250'. On railroad siding. Four trucks: One, bulk, 8-ton; one, 18-ton truck and trailer; one 3-ton flatbed; and one pickup. Second warehouse (approximately 50' x 100'), used for grain storage, on two railroad sidings. Good feed area.

Communicate with the Trust Department of BANK OF STOCKTON, Post Office Box 1110, Stockton, California.

Alfalfa Pellet Mixtures For Lambs Compared

STATE COLLEGE, N.M. — A three-year experiment on self-feeding alfalfa pellets for fattening lambs shows that pellets containing 80% coarse alfalfa hay, 10% sorghum grain and 10% molasses were superior to other pellet mixtures for efficiency of feed use and cost of gain.

The results have been presented by Prof. P. E. Neale, animal husbandman at the New Mexico A&M College Agricultural Experiment Station in Bulletin 429, "Alfalfa Hay Pellets for Fattening Lambs."

Remaining lots ranked as follows in combining cost per 100 lb. of feed and efficiency of feed use: 70-20-10 with no Aureomycin; 70-20-10 loose alfalfa first 15 days, and 80-10-10, 70-20-10 and 60-30-10, all with Aureomycin. The highest cost lot was 60-30-10 without Aureomycin.

The lambs all sold at the same price, indicating the same degree of condition.

The New Mexico experiment station has been conducting tests for nine years on pellet self-feeding. The pellets are composed of various mixtures of coarse alfalfa hay, sorghum grain and molasses.

Objectives of the latest three-year experiment were to: (1) compare 80, 70 and 60% roughage mixtures; (2) test the usefulness of Aureomycin in each mixture; (3) test the necessity of feeding some loose alfalfa hay while lambs were becoming adjusted to full feed of pellets, and (4) test vaccination for overeating disease.

Lambs not vaccinated and fed Aureomycin made the greatest daily gain.

Previous experiments have shown that the coarse or damaged alfalfa hay is ideal for self-feeding pellets, Prof. Neale said. He noted that "this has raised its feed value close to or equal to that of higher grades of alfalfa hay."

Bulletin 429 may be obtained by writing to the Department of Information, New Mexico A&M College, Box 757, State College, N.M.

Grant Made for Studies Of Cattle Diseases

FT. COLLINS, COLO.—The Colorado Serum Co., Denver, has made a $2,500 research grant to the Colorado State University College of Veterinary Medicine.

Dr. Rue Jensen, dean of the veterinary medicine college, said the grant would be used to help support current research projects on shipping fever and infectious bovine rhinotracheitis (red-nose disease) of cattle.

Dr. Jensen said both diseases have been under investigation at Colorado State University for about five years, and major progress in control of red-nose disease has been made.

The grant was presented by Majon Huff, president of Colorado Serum, and was accepted by Dr. Jensen.

North Carolina Corn Growers Prepare to Store Bumper Crop

RALEIGH, N.C. — North Carolina farmers are building facilities to store an estimated additional 3 million bushels of corn this year, according to a recent county-by-county survey.

"This is the first big year we have ever had in corn storage in the state," said Ed Coates, North Carolina extension agricultural engineer. "Up until 1958, only 8.5 million bushels of rat-proof storage existed on North Carolina farms."

Mr. Coates added that at least 5 million bushels of new storage facilities will be added to North Carolina farms next year.

"And this is only the beginning," Mr. Coates predicted. "Not only have steel bins been going up at a record pace, but they are going up right. Equipment for airing and drying the corn is being included. Many farmers have their eye on these new storage facilities."

The majority of the new bins erected this year are for storing marketable corn although a great deal will be used for holding livestock feed.

Mr. Coates pointed out that many farmers are planning for efficient handling of grains when they erect their bins. Some of the farmers located the bins next to pig parlors so the corn can be augered directly from storage to self-feeders.

Chapter of GEAPS Formed at Hutchinson

HUTCHINSON, KANSAS — The first Kansas chapter of the Grain Elevator and Processing Superintendents, an international organization, has been formed in Hutchinson. Delmar D. Barkman, manager of one of Farmers Cooperative Commission Co. elevators, was named president. E. W. Wooledge, superintendent for the Gano Grain Corp., was elected vice president and C. E. Baker, Security Elevator superintendent, secretary-treasurer. Wichita and Ponca City, Okla., representatives joined 17 local officials at the meeting. Dean Clark, Chicago, secretary of GEAPS, also was here to assist in the organization.

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P. O. Box 120 Paxton, Illinois Phone 222

Peavey Announces Electronic Device for Moisture Measurement

MINNEAPOLIS — Introduction of a new electronic computer for measuring moisture content in grain and other products has been announced by officials of F. H. Peavey & Co., Minneapolis.

R. W. Kemerer, vice president, said the company has completed research and development of the computer and is going into production with a quantity of the units for use in its own elevators and laboratories. Production will also be expanded to meet whatever demand develops throughout the rest of the trade.

"The machine," said Mr. Kemerer, "initiates a new era in moisture measurement by overcoming the combined inadequacies of present measuring methods. It is speedy and simple to use, gives direct-instantaneous readings, tests all grains, doesn't destroy the sample being tested, is portable and positively accurate."

According to Mr. Kemerer, the computer operates on a totally new physical principle previously not used in moisture measurement. He did not disclose the physical process by which Peavey can guarantee absolutely accurate computations of moisture content. But he did state that Peavey utilizes a universal standard that assures constant calibration of its new computer.

"This," Mr. Kemerer said, "eliminates transporting the machine to state or federal weights and measures office for periodic recalibration. As long as the machine is running, it is bound to provide a completely accurate reading."

Development of the computer in the Peavey firm has been by Lowell Mce, director of electronic research, assisted by Orval Egstad, research engineer, and Oscar Olson, grain laboratory superintendent. Mr. Kemerer said the company intends to market the computer at a price competitive with other top-rated moisture devices.

Roy M. Lynnes Dies At Elmhurst, Ill.

ELMHURST, ILL. — Roy M. Lynnes, former president and publisher, Lynnes Publishing Co., Elmhurst, died recently of a heart attack. He was 59.

Mr. Lynnes had been associated with the poultry publishing business since 1923, when he and the late B. D. Butler started The Baby Chick publication, which later became Poultry Supply World. He retired from active management of the company in 1956.

Mr. Lynnes also served as secretary of the Illinois Poultry Improvement Assn. for 12 years. He was former director of the Poultry & Egg National Board, and served as a special committee chairman for the seventh World's Poultry Congress.

Funeral services were held Dec. 2 in Elmhurst.

NEW FEED FIRM

UNDERWOOD, N.D. — Burns & Wretling, Garrison, N.D., in partnership with John Neary, Underwood, have founded the Formula Feed Service here.

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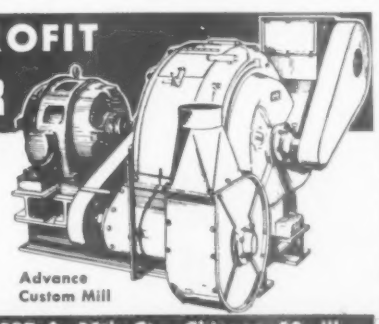
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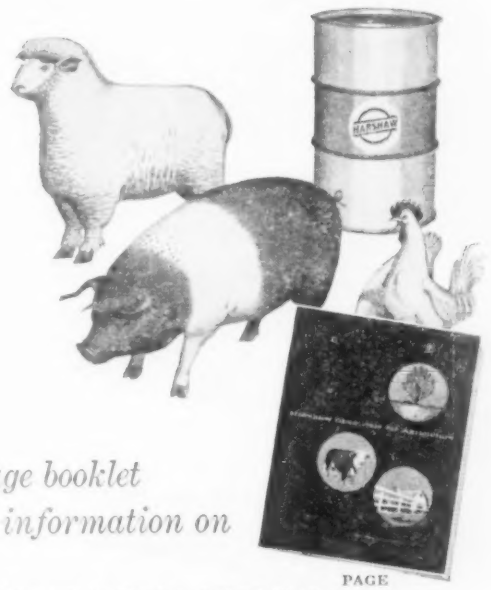
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for this 24 page booklet
furnishing information on

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10 bag order in 1948, 10,000* bag order in 1958

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Ten years ago this firm placed their first order for Ultra-Life Products—10 bags of 100 pounds each. Their business has grown steadily over the years and, as this recent order shows, they have enjoyed great success with quality Ultra-Lifed Feeds.

The 10,000 bag, $174,000, order for immediate shipment, came just ten years after their first 10-bag order. The Ultra-Life Products in this shipment will supply vitamin and mineral fortification to manufacture the feed required by 660,000 laying hens for one year, or 10,000,000 broilers for nine weeks, or 33,330 dairy cows for one lactation, or to fatten 2,222,000 hogs, or feed out 2,380,700 steers.

Quality products—outstanding services—keep Ultra-Life and Ultra-Lifed Feed Manufacturers ahead of competition. That's why, year after year, sales of Ultra-Life Products surpass the previous year—in 1958 a big 20% increase over 1957! Go the Ultra-Life way to build up your feed business. Write today for complete facts.

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Main Office and Plant East St. Louis, Illinois
One of the country's oldest and largest manufacturers of vitamin and trace mineral products

REAL PROOF—
YOU BUILD WITH
ULTRA-LIFE

Cincinnati: Demand fair; trend steady; supply adequate; $55.

TENNESSEE

(Continued from page 1)

er credit terms. Nine out of 10 would deliver.

Here is what was found, Dr. Kohls said:

1. Nine out of 10 farmers were purchasing some feed during the month of the interview.

2. During the four-week period, farmers averaged seven contacts with the supplier; one half fell within the range of one or two contacts a week. One out of six farmers had all or part of feed delivered. However, this accounted for half of the feed volume.

3. Farmers patronized nearby sources—three out of four traveled less than four miles to buy feed.

4. Three out of four farmers bought all of their feed from one source. Farmers with larger enterprises tended to be those who used more than one source.

5. Some 48% of the farmers had patronized the same dealer for eight years, or for their entire residence period in the community.

6. Twenty nine percent changed dealers within the eight-year period or since moving to the community.

7. Twenty three percent patronized two or more sources.

8. When asked to name feed dealers available to them, 48% named three or less, 31% named four dealers and 21% named five or more (there were actually eight dealers in the area).

9. In most instances farmers thought there was not too much difference among dealers. Fewer farmers thought there was not as much difference with respect to speed and ease of getting grinding and mixing services, and on prices of comparable feed, than for such considerations as special price discounts, credit and terms of sale, dealer's willingness to help in feeding problems, quality of products and charges for grinding and mixing.

10. Price checking among dealers was fairly limited, with 46% claiming they made no effort and 19% saying they checked through advertising or salesmen. The price checkers were the larger farmers, Dr. Kohls said.

Information on Feeding

11. Farmers got their information about feeds and feeding problems mostly from articles in farm magazines. In a rating of various sources as "seldom or never used," the following percentages were reported by Dr. Kohls: articles in farm magazines, 8%; bulletins and literature at dealers, 23%; dealers and salesmen, 27%; visiting with neighbors, 19%; advertising in newspapers and magazines, 33%; radio and television, 35%; university field days and bulletins, 57%, and county agents, 73%.

Choosing Dealers

In analyzing the reasons why the farmer chooses particular dealers, Dr. Kohls made these points:

1. There is no big overwhelming single reason.

2. Location evidently meant more than "nearest dealers" since eight out of 10 giving location actually had a nearer dealer than the one patronized.

3. Two thirds of the farmers did think one received better and preference treatment if they both bought feed and sold grain at the same place.

4. Forty eight percent thought dealer considerations were more important than brand considerations, while 33% thought brand considerations most important, and 19% could not decide between the two.

5. Many did little price checking before buying, though half did say there was some difference.

Dr. Kohls pointed out that one of the images that farmers have about mixers is that they are kept waiting too long when they come in for service.

The results of the study imply that if a dealer is different from the other dealers, he has to get out and tell and retell his story to get the point across. Different methods have to be used in introducing new information to old customers, and in introducing new information to prospective customers.

"The feed industry has convinced people of the value of using commercial feed," said Dr. Kohls. "The next problem is to convince them of the wisdom of using a complete feed instead of a supplement. More information of the type contained in this survey is needed to enable you feed people to plan your shots."

Contract Farming

In discussing contract agriculture and the feed industry, Oakley M. Ray, director of market research for the American Feed Manufacturers Assn., pointed out the changes that are occurring, the reasons for them and some of the problems they create.

"Those companies who will be most successful are those who keep most up to date and are ready to make the changes in company policies that are dictated by conditions," he said.

Mr. Ray said that he has gathered much information on the subject of contract agriculture and has available a bibliography of published material that now numbers 22 pages. The AFMA will never be entirely for or against contract agriculture, he said.

Supermarket operations have contributed to the need for contract agriculture. Before a supermarket will give shelf space to a product it must have a dependable source of supply, an adequate supply to meet the demand and uniform quality at a price the consumer will pay, Mr. Ray said.

Producers are interested in contract agriculture because it removes some of the price risk burden from their shoulders, and it enables them to get into larger operations with lower capital requirements.

Some producers do not like contracts because it removes from their hands some of the management control. However, Mr. Ray continued, this is the trend in other industries and it is not necessarily a bad factor. "If the producer has no alternatives, then this can be a problem," he said. "But when producers have a choice of either remaining independent or selecting one of a number of contractual arrangements, they are probably selecting the method that suits them best."

Mr. Ray estimated that 95% of the broilers are produced under contract, 50% of turkeys, 5% of eggs, 30% of dairy products and 2% of hogs.

The feed industry is taking part in contractual arrangements because greater production efficiency is achieved in certain cases, and where this is achieved, competition forces others into contract programs. But there are problems, Mr. Ray said. Capital requirements are large. "Everyone considering taking part in contract programs should take a look at the situation and decide whether or not he wants to shoulder the added financial burden. It might be possible to get conventional credit agencies to finance operations."

A feed manufacturer incurs increased risk when he is operating under a contract program. He should take into account the possibility of market fluctuations. A manufacturer also is required to offer more management service, a service that costs him something to give and should be considered in his contractual arrangement, said Mr. Ray.

"We are going to have more contract agriculture," Mr. Ray stated. "The only question is what type will it be."

Poultry Industry

Dr. O. E. Goff, head of the poultry department, University of Tennessee, examined several topics in the poultry industry and told of some work being done by his staff.

In talking about hours of light that a layer should have, Dr. Goff noted that it isn't actually the total hours of light that influence production, but rather the increment of light that is important. If the amount of light is increased by 15 minutes each month, production will increase. He challenged the belief that a hen will lay only so many eggs in a year and that regulating light will only shorten the time in which the bird will lay that given number of eggs. But he acknowledged that more information is needed on this subject, as well as on the type of housing that is best.

Dr. Goff reported that poultry being fed feather meal and amino acids are getting good gains and he said there is a possibility that a ration with these components will be in more widespread use in a short time.

In the production of eggs, he pointed out, 30 to 50% of the man-hours are spent in the care and handling of eggs. "I wonder if this is necessary," he said. He suggested that each producer be checked out and his operations approved so that marketing of eggs could be direct, with samples of production being taken each week instead of checking every egg.

Dr. Goff called for the training of more young men in poultry science and in management to keep the poultry industry healthy.

Compliments Industry

L. C. Jacobs, director of the feed, seed and fertilizer division, Tennessee Department of Agriculture, complimented the feed industry for improving the quality of feed. He said that less than 5% of the samples fail to meet specifications, a big improvement over what it used to be.

Mr. Jacobs noted that there is a great difference today in the relations between the feed industry and the extension workers. "When I was selling feed 35 years ago," he said, "my biggest competitor was home-mixed feeds, recommended by the extension people. Today they are working closely with the feed manufacturers."

E. C. McReynolds, associate director of extension service, University of Tennessee, predicted that corn production would continue to increase in the state and that it would lead to more pigs, feeder cattle and other livestock operations. He told of university work in trying to develop a better meat-type hog and to select the most efficient bulls to head up beef herds. He said he "sees in contract farming an atmosphere that is more favorable to unionization of agriculture," and he is not convinced that this is a good trend.

Changing Agriculture

"A Changing Agriculture" was the topic of Webster Pendergrass, dean of the College of Agriculture, University of Tennessee. He characterized the changing agriculture as moving in the direction of becoming a better agriculture. With the increasing population—going up at the rate of 3 million persons a year—the number of workers on farms constantly dropping and an increase in the land area being taken out of production, these changes have been essential to our high standard of living.

"These changes have been very beneficial to our entire country," Mr. Pendergrass said. "But there is one thing we haven't been able to do—turn the efficiency gains into income gains for the farmer. In 1956, the farmer was making about 75¢ per hour while the industrial worker was making $1.90."

Mr. Pendergrass said that the surpluses in this country have been created by price and distribution policies, not by research and education. He said it would be foolish to slow up research and education, as some have suggested, to hold down production. Farm production is one area in which the U.S. has a great lead on Russia. But that lead could be dissipated if progress stood still. Mr. Pendergrass also noted that food and fiber prices have been lowered by research.

Dr. Jonathan Keim, area supervisor, U.S. Department of Agriculture, told the convention group about the new poultry inspection law that goes into effect Jan. 1 and answered questions.

Welcomes were extended to the association by Joe Carr, Tennessee secretary of state, and by Gayle Gupton, assistant vice president, Third National Bank, Nashville.

A fellowship hour Sunday evening opened the convention. Hosts at luncheon Dec. 1 were Bemis Bro. Bag Co., Langston Bag Co. and Semmes Bag Co. The convention concluded with a banquet, floor show and dancing at the Plantation Club. A cocktail party prior to the banquet was given by the Werthan Bag Co.

HEAVY SNOWS BOOST MONTANA FEEDING

HELENA, MONT.—Heavy snow in the Hi-Line area of Montana has forced ranchers to increase their supplemental feeding of range livestock. Snow accumulated in the northern area to a depth of 8 to 12 in. Crusting of snow and cold temperatures in some eastern counties made it necessary for stockmen to feed more than the normal amount of hay to range livestock. Elsewhere in Montana, supplemental feeding was at a normal rate. About half of the cattle in the state are receiving hay or grain and concentrates.

F. W. Greer Heads Tennessee Feed Manufacturers Assn.

NASHVILLE, TENN.—New president of the Tennessee Feed Manufacturers Assn. is F. W. Greer, Security Mills, Inc., Knoxville. He was elected to succeed George P. Moseley, Quaker Oats Co., Memphis, at the ninth annual convention held here Nov. 30-Dec. 1.

Also elected at the meeting were the following: C. Turner Whitworth, Nutrena Mills, Inc., Memphis, vice president for West Tennessee; D. B. Gambill, Barry-Carter Milling Co., Lebanon, vice president for Middle Tennessee; and W. B. Carden, Quaker Oats Co., Chattanooga, vice president for East Tennessee. Mr. Whitworth and Mr. Gambill were reelected. Charles H. Warfield, Nashville, was re-appointed general counsel and executive secretary.

The only new member of the board of directors is F. B. (Rudy) Langston, Langston Bag Co., Memphis. Other directors reelected included: Joe N. Pless, Pless & Sheahan, Memphis; M. E. Staed, Ralston Purina Co., Nashville; Q. D. Edmonds, Model Mills, Jackson; W. D. Hudson, Jr., Cumberland Milling Co., Clarksville; Lehman Keith, Hermitage Feed Mills, Nashville; Bruce Ballew, Farmers Milling & Elevator Co., Collierville, and Mr. Moseley.

Wool Growers to Meet

PORTLAND, ORE.—Close to 800 members of the National Wool Growers Assn. and their wives from 12 western and southwestern states are expected to attend an association meeting Jan. 25-29 at the Multnomah Hotel in Portland.

NEW FEED COMPANY

LEWISTOWN, MONT.—The formation of the Central Feed Co. of Lewistown has been announced by one of the new firm's three principal partners. The company is being organized by Jerry Bardwell, with Ole Fuglestad and G. O. Behlmer, as partners. All are from Lewistown.

DRIED BEET PULP

changed; supply adequate; $6.16 cwt. in

Louisville: Demand fair; trend strong;

Cincinnati: Demand excellent; supply fair;

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Denver: Demand fair; trend steady; supply good; 2,250 A, 300 D 22¢ lb.

New York: Demand fair; trend steady; supply limited; price per lb. in 55 gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

Boston: Demand slow; supply good; 600 D, 1,500 A 17½¢ lb.; 300 D, 2,250 A 18¢ lb.; 300 D, 1,500 A 16½¢ lb.; 300 D, 750 A 14¾¢ lb.; 600 D, 3,000 A 20¢ lb.; 300 D, 3,000 A 19½¢ lb.; 75 D, 750 A 14½¢ lb.

ALFALFA MEAL

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $58.50@59; 13% No. 1 fine ground $48@49.

Denver: Demand good; trend firm; supply ample; dehydrated $46, sacked, Denver.

Portland: Demand good; supply limited; trend unchanged; 15% suncured $40; dehydrated $68.

Philadelphia: Demand and supply fair; trend unsettled; 17% $63.50.

New Orleans: Demand fair; trend steady; supply ample; 17% $65@66; pellets $57@59.

Ft. Worth: Demand improved; supply sufficient; 17% protein, dehydrated $58, delivered Ft. Worth area, truck; Kansas dehydrated, 17%, 100,000 A $60.80, rail; suncured 17%, No. 1 ⅛-in. grind $39, truck or rail immediate.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $65.50.

Kansas City: Demand good; trend steady to stronger; supply adequate, but with tightness said to be likely before new production; dehydrated alfalfa meal with 17% protein and 100,000 units vitamin A guaranteed on arrival; reground pellets $52@54, sacked; oiled reground pellets $54@56, sacked; pellets $47@49, bulk; 18% protein 125,000 units A meal $56, sacked; non-guaranteed A meal $42.50, sacked; suncured alfalfa demand is slow, No. 1 fine ground $33.50@34.50, No. 1 ¼-in. $31.50, No. 2 ¼-in. $29.50, sacked.

Minneapolis: Steady trend; supply and demand about equal; 17% reground pellets, 100,000 units vitamin A $53; oiled reground $55.

Omaha: Demand fair; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $47, sacked meal $52, Omaha basis.

Los Angeles: Demand firm; trend steady; supply adequate; dehydrated meal, 17% protein, 100,000 A $49, bulk; dehydrated pellet meal, 17% protein, 100,000 A $51, bulk; suncured crumbles, 15% protein $43@44 bulk; suncured meal, 15% protein $41@42, bulk.

Boston: Demand good; supply adequate; dehydrated, 17% $63; suncured, 13% $48, nominal.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $39.50; dehydrated, 17%, 100,000 A $57.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $44, truck loads; 136,000 A unit dehydrated $69, truck loads.

Buffalo: Demand and supply fair; trend higher; $64.50, Boston.

Memphis: Demand fair; trend steady; supply scarce; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $62.

ANIMAL FAT (STABILIZED)

Chicago: Demand and supply fair; bleachable fancy tallow, tank truck or carlots 7¼@7⅝¢ lb.; yellow grease 7@7¼¢ lb.

Louisville: Demand good; trend steady; supply ample; bleachable white 7⅛@7⅜¢ lb.; white tallow 8¼@8½¢ lb.; yellow grease 7@7¼¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 7½@8¢ lb., tank cars.

Ft. Worth: Demand fair; supply adequate; prime tallow, tank cars 7¼¢ lb.; drums 9¼¢ lb. f.o.b. north Texas packing plants with returnable drums.

St. Paul: Bleachable fancy tallow suffered further weakness in export demand; feed demand steady to good; quoted this week at 7¼¢ lb., f.o.b. producer's plant.

Kansas City: Demand slow; trend steady; supply adequate for light demand but not pressing since soapers are buying; bleachable fancy tallow 7¾¢ lb., tank car.

Atlanta: Demand fair; trend steady; supply ample; 7¼¢ lb., immediate.

San Francisco: Demand fair; supply ample; bleachable fancy 8¼¢ lb.; yellow grease 7¼¢ lb.

Boston: Demand and supply good; $152.50, f.o.b. shipping point.

BARLEY FEED

Chicago: Demand quiet; supply adequate; $35.

Baltimore: Demand quiet; supply adequate; $45.50.

Portland: Demand good; trend higher; export sales dipping into feed barley, keeping prices firm; rolled $64, ground $62.

Ogden: Rolled $48@53, whole barley $40@45.

Philadelphia: Demand dull; supply fair; pulverized $46.75.

New Orleans: Demand slow; trend unchanged; supply light; $60@61.

Los Angeles: Demand fair; trend unchanged; supply adequate; standard rolled $3.25 cwt., sacked; standard ground $3.25 cwt., sacked.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Boston: Demand and supply steady; $45.

San Francisco: Demand fair; supply ample; rolled $60; ground $59.

Milwaukee: Demand good; supply fair; needles $1.04@1.14; ground screenings $25, sacked, Milwaukee.

Seattle: Demand good; trend firm; supply fair; $53, bulk, truck lots.

BENTONITE (SODIUM)

Denver: Demand fair; trend good; supply ample; $21, Denver.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points; granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

BLOOD FLOUR

Louisville: Demand fair; trend stronger; supply normal; $95@100.

BLOOD MEAL

Louisville: Demand fair; trend stronger; supply normal; $95@100.

Chicago: Demand and supply fair; $130@135, guaranteed 80% protein.

Portland: Demand slow; supply ample; trend unchanged; $105.

Ogden: Supply average; $110 in 100-lb. bags, f.o.b. Ogden.

New Orleans: Demand fair; trend unchanged; supply light; $110@115.

Los Angeles: Demand fair; trend unchanged; supply adequate; $7.50 a unit of ammonia.

San Francisco: Demand good; supply tight; $7 a unit of ammonia.

BONE MEAL (STEAMED)

Cincinnati: Demand fair; trend steady; supply ample; $95, sacked, Cincinnati.

Portland: Demand fair; trend higher; supply limited; $100.

Denver: Demand good; trend strong; supply tight; $77.50, Bay Shore, Cal.

New Orleans: Demand slow; trend steady; supply normal; $85@90.

Louisville: Demand fair; trend steady; supply ample; $90@95.

Ft. Worth: Demand fair; supply light; $85, sacked, f.o.b. Ft. Worth, local manufacture.

Chicago: Demand good; supply fair; $80@90.

San Francisco: Demand good; supply ample; $75.

Los Angeles: Demand fair; trend steady; supply adequate; imported $73.50 in 20-ton lots.

Boston: Demand and supply steady; $90.

Seattle: Demand steady; trend firm; supply good; $87, ex-dock, truck lots.

BREWERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply adequate; $56.

Philadelphia: Demand fair; trend unsettled; supply light; $64.

New Orleans: Demand fair; trend steady; supply normal; $53.50@54.50.

Louisville: Demand good; trend strong; supply fair; $52, up $2.

Ft. Worth: Demand slow; supply moderate; $56, December, delivered Ft. Worth.

Chicago: Demand fair; supply tight; 26% $52@52.50.

San Francisco: Demand fair; supply ample; $54.

Los Angeles: Demand and trend steady; supply adequate; $49.50 bulk, $53.50 sacked.

Boston: Demand active; supply improved; 26% $59, 22% $57.

Buffalo: Demand good; trend higher; supply fair to poor; $56, bulk, Boston.

St. Louis: Demand good; trend steady; supply ample; $49.

Milwaukee: Demand good; supply fair; $52.50.

BREWERS DRIED YEAST

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¼@12½¢ lb. l.c.l.

Denver: Demand light; trend steady; supply ample; 9¢ lb., f.o.b. Golden, Colo.

Portland: Demand good; trend firm; supply ample; 8½¢ lb.

Louisville: Demand fair; trend steady; supply ample; 10@10½¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

Buffalo: Demand good; trend steady; supply limited; $10.65 cwt.

Omaha: 10½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Los Angeles: Demand steady; trend unchanged; supply adequate; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Boston: Demand and supply steady; 10¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

BUTTERMILK-CONDENSED

Ogden: Supply normal; $4.40, 100-lb. drum.

Chicago: Demand light; supply adequate; $3.25 cwt. in carlots.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Wichita: Demand good; supply insufficient; $2.90 cwt. in barrels.

New Orleans: Demand slow; trend steady; supply normal; $4.25@4.30 cwt.

Louisville: Demand slow; trend steady; supply normal; $4.25 cwt.

Los Angeles: Demand steady; trend unchanged; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

San Francisco: Demand fair; supply good; $5 cwt.

Boston: Demand slow; supply light; 3½¢ lb.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Los Angeles: Demand and trend steady; supply ample; $10.25, sacked.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CHARCOAL

Chicago: Demand quiet; supply adequate; poultry charcoal $110 in 50-lb. multiwalls.

San Francisco: Demand steady; supply ample; $141.

Los Angeles: Demand slow; trend unchanged; supply ample; $156 sacked in less than ton lots; $144.40 sacked in ton lots.

Boston: Demand and supply steady; $100.

COCONUT OIL MEAL

Seattle: Demand fair; trend strong; supply limited; $87, ex-dock, Seattle (Philippine production).

San Francisco: Demand good; supply tight; solvent $82.50; expeller $90.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; supply limited; trend steady; 50% solid $95@98, f.o.b. Gulf.

New York: Demand fair; supply good; 5# lb., f.o.b. eastern shore.

Denver: Demand fair; trend steady; supply ample; dried $187.40, f.o.b. Denver.

Boston: Demand active; supply scarce; 5¢ lb., nominal.

Los Angeles: Demand and trend steady; supply limited; 5¢ lb.

COD LIVER OIL (FORTIFIED)

New York: Demand limited; trend steady; supply fair; price per lb. in 55 gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand fair; supply good; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 600 D, 1,500 A 18¢; 300 D, 1,500 A 17¢.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $55.80, meal $87.80.
Atlanta: Feed $61.98, meal $93.98.
Birmingham: Feed $60.64, meal $92.64.
Boston: Feed $60.84, meal $92.84.
Chicago: Feed $49, meal $81.
Cleveland: Feed $57.14, meal $89.14.
Denver: Feed $59.51, meal $91.51.
Ft. Worth: Feed $57.96, meal $89.96.
Indianapolis: Feed $54.36, meal $86.36.
Kansas City: Feed $49, meal $81.
Louisville: Feed $56.21, meal $88.21.
New Orleans: Feed $59.20, meal $91.20.
New York: Feed $60.43, meal $92.43.
Norfolk: Feed $59.71, meal $91.71.
Philadelphia: Feed $60.02, meal $92.02.
Pittsburgh: Feed $57.96, meal $89.96.
St. Louis: Feed $49, meal $81.

CORN OIL MEAL

Louisville: Demand slow; trend strong; supply ample; $54.45, up $3.

Cincinnati: Demand fair; trend steady; supply adequate; $55.

COTTONSEED OIL MEAL

Chicago: Demand good; supply tight; hydraulic $65, solvent $64, basis Memphis.

Denver: Demand good; trend strong; supply very tight; $71, nominal.

Portland: Demand good; trend higher; supply limited; $70.

Ogden: 41% $63@68.

Philadelphia: Demand slow; trend unsettled; supply light; $81.

Wichita: Demand fair; supply ample; 41% old process $65.

New Orleans: Demand light; supply average; $73@73.50.

Louisville: Demand slow; trend strong; old process $71, up $2; new process $70, up $2.

Ft. Worth: Demand excellent for meal, slow for hulls; limited offerings; carlots, 41% old process $66@67, prompt; solvent $66.80, January-February; pellets $2 additional; cottonseed hulls $18.

Cincinnati: Demand poor; trend higher; supply very limited; $75.

Atlanta: Demand good; trend steady; supply limited; 41% $69, sacked, delivered, immediate.

Omaha: Demand good; supply very tight; 41% solvent $68.20, bulk, delivered Omaha.

San Francisco: Demand good; supply tight; 41% solvent $69.70, 44% solvent $72.50.

Los Angeles: Demand and trend steady; supply limited; $60@62, bulk, expeller; $62.10, bulk, solvent.

Boston: Demand good; supply fair; $84.

Seattle: Demand good; trend firm; supply limited; 41% expeller process $78, delivered, truck lots.

Buffalo: Demand and supply fair; trend steady to higher; $83, Boston.

Kansas City: Demand pretty good; trend strong; supply tight, with nothing out of Texas available for December; old process meal $66.50, Memphis; solvent $65.50.

St. Louis: Demand good; trend steady; supply limited; solvent $71.

Memphis: Demand good; trend higher; supply limited; prime 41% protein, old process $66.50; new process, 41% solvent $66.50.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

New York: Demand and supply good; trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb.; 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 23¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 12%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.98, sacked, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Denver: Demand good; trend firm; supply ample; $96.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Portland: Demand slow; supply ample; trend unchanged; $115.

Cincinnati: 18½% phosphorus $92@93.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Minneapolis: 18.6% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

DISTILLERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply adequate; $52.

Philadelphia: Demand slow; trend unsettled; supply light; $63.50.

Louisville: Demand good; trend steady; supply light; bourbon grains: light $52, dark $54, solubles $77.

Seattle: Demand good; trend firm; supply limited; $67, truck lots.

Buffalo: Demand and supply fair; trend steady to higher; $59, bulk, Boston.

Boston: Demand steady; supply adequate; light $60.50; dark $62.50.

San Francisco: Demand fair; supply ample; solubles $85.

DRIED BEET PULP

Ft. Worth: Demand fair; supply sufficient; carlots, 50-lb. papers: December, plain or molasses $53.33, delivered Ft. Worth.

Ogden: Supply normal; $40@44.

Portland: Demand good; supply ample; trend firm; $52.

New Orleans: Demand fair; trend unchanged; supply ample; $60@61.

San Francisco: Demand good; supply fair; $48.40.

Atlanta: Demand slow; trend steady; supply ample; $62.25, sacked, immediate.

Los Angeles: Demand good; trend firmer; supply adequate; molasses pulp $47.10@50.90, bulk.

Boston: Demand steady; supply adequate; $55.50.

Milwaukee: Demand good; supply fair; plain $50; molasses $50.

Seattle: Demand slow; trend firm; supply good; $47, carlots.

Buffalo: Demand and supply fair; trend strong; $56, Boston.

DRIED BUTTERMILK

Ogden: Supply average; $7.25, 100-lb. bag.

New Orleans: Demand slow; supply ample; trend steady; $11@11.50 cwt.

Louisville: Demand fair; trend steady; supply normal; 12@12½¢ lb.

DRIED CITRUS PULP

New Orleans: Demand fair; trend steady; supply ample; $53.50@57.50, f.o.b. Florida.

Buffalo: Demand good; trend steady; supply limited; $11.35 cwt.

San Francisco: Demand fair; supply ample; 11¢ lb.

Los Angeles: Demand fair; trend steady; supply adequate; 11¾¢ lb.

San Francisco: Demand and supply fair; meal $54.

Los Angeles: Demand good; trend stronger; supply tight; orange pulp $43 bulk; lemon pulp $41 bulk.

Atlanta: Demand fair; trend weak; supply ample; $47.

Boston: Demand and supply fair; $61.50.

Buffalo: Demand fair; supply poor; too scarce to quote.

DRIED SKIM MILK

New Orleans: Demand slow; supply ample; trend steady; $11.50@12 cwt.

Louisville: Demand slow; trend steady; supply normal; 11½@12¢ lb.

Chicago: Demand good; supply light; $10.50@10.75 cwt. in carlots.

Philadelphia: Demand slow; supply light; $12.50.

Chicago: Demand fair; none offered; medium acid, nominally $11@11.25; sweet cream $11.25@11.50 cwt. in carlots.

Portland: Demand good; supply ample; trend unchanged; 13¢ lb.

Ogden: Supply normal; $15.15, 100-lb. drum.

Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.

Milwaukee: Demand and supply fair; $11 cwt.

Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.

Ogden: Supply normal; $9.70 in 50-lb. bags.

San Francisco: Demand and supply fair; 13½¢ lb.

Los Angeles: Demand and trend steady; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.

Boston: Demand good; supply short; 12¢ lb.

DRIED WHEY

Chicago: Demand fair; supply adequate; $5.50, f.o.b. plant.

Portland: Demand good; supply ample; trend unchanged; $7 cwt.

Ogden: Supply average; $6.90, 100-lb. bag.

Philadelphia: Demand slow; supply light; $6.25 cwt.

New Orleans: Demand fair; trend unchanged; supply adequate; $6@6.50 cwt.

Louisville: Demand fair; trend steady; supply normal; 6½@7¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6, December, sacked, delivered Ft. Worth; $6.25, December, ton lots, f.o.b. warehouse, Ft. Worth.

San Francisco: Demand steady; supply good; $5.50 cwt.

Los Angeles: Demand steady; trend unchanged; supply adequate; $6.16 cwt. in carloads; $6.40 cwt. in l.c.l.

Boston: Demand steady; supply plentiful; 5½¢ lb., f.o.b. shipping points.

Seattle: Demand steady; trend firm; supply good; $6.40 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand slow; supply short; 85 to 87% protein $92.50, f.o.b. trucks, north Texas plant.

Los Angeles: Demand slow; trend unchanged; supply ample; $1.25 a unit of protein.

Atlanta: Demand fair; trend steady; supply ample; $96, sacked, immediate, f.o.b. Alabama and Georgia producing points.

Boston: Demand steady; supply tight; $85, f.o.b. shipping points.

FISH MEAL

Chicago: Demand good; supply tight; eastern menhaden fish meal, 60% protein $155@160; Gulf, no offerings; western blended, 60% protein $2.25 a unit of protein; Northwest herring-salmon blend, no offerings; Canadian herring, 73% protein $2.25 a unit of protein subject to production.

Denver: Demand good; trend strong; supply scarce; $2.35 a unit of protein, f.o.b. West Coast.

Portland: Demand slow; trend unchanged; $2.25, f.o.b. Vancouver.

Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $151@153.

New Orleans: Demand light; supply limited; trend steady; menhaden 60% $145@147; scrap $136@137, f.o.b. Gulf.

Louisville: Demand fair; trend strong; none available; $175@180, nominal.

Ft. Worth: Demand good; supply limited; 60% Angola, due late December $163, f.o.b. Houston.

Cincinnati: Demand fair; trend steady; supply adequate; $164.

Milwaukee: Demand good; supply fair; 60% $160, Milwaukee.

Seattle: Demand fair; trend easy; supply good; $2.33 a unit protein, delivered truck lots (Canadian production).

Buffalo: Demand good; trend steady; supply limited; 60% protein, menhaden $180, bulk, nominal; $185, sacked, nominal.

San Francisco: Demand good; supply fair; imported $2.40 a unit of protein.

Los Angeles: Demand good; trend steady; supply tight; local production, 60% protein $2.35 a unit.

Boston: Demand active; supply very scarce; domestic, none offered; imported $160.

Atlanta: Demand fair; trend strong; supply limited; 60% $170, sacked, nominal.

Minneapolis: 60% meal in ample supply; demand fair; $170, Minneapolis, truck loads.

HAY

Boston: Demand and supply steady; No. 2 timothy $40@42.

Los Angeles: U.S. No. 1 $32@34; U.S. No. 2 leafy $29@31; U.S. No. 2 green $27@29; U.S. No. 2 $24@26.

Denver: Demand poor; trend slow; supply ample; alfalfa, baled $24, first and second cutting, delivered in Denver.

Portland: Demand good; trend firm; supply limited; $32.

Ogden: Supply normal; $1 bale; $18 in the barn.

Philadelphia: Demand slow; supply light; $32@35.

Wichita: Demand poor; supply ample; prairie $8@10, alfalfa $10@12.

Louisville: Demand slow; trend steady; supply normal; local and Ohio or Indiana hay, any variety, No. 1 $25, No. 2 $23; straw, any variety $25.

Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; prairie, No. 2 $26@28; No. 2 Johnson grass $24@26, delivered Texas common points.

Cincinnati: Demand fair; trend steady; supply adequate; by truck—No. 1 timothy $34; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.

Seattle: Demand fair; trend firm; supply good; alfalfa, U.S. No. 2 green $32, truck lots.

HOMINY FEED

Chicago: Demand good; supply tight; $48.

New Orleans: Demand light; supply adequate; trend steady; $49@49.50.

Boston: Demand steady; supply adequate; $56.

Louisville: Demand fair; trend strong; supply ample; $50.50, up $1.50.

Cincinnati: Demand fair; trend higher; supply adequate; $49.

Seattle: Demand fair; trend firmer; supply good; $54, carlots.

Kansas City: Demand and fair; trend steady; supply tight for nearby; yellow $39@40, bulk, $3.50 more for sacks, white not being offered.

St. Louis: Demand fair; trend steady; supply limited; yellow $48.

Milwaukee: Demand good; supply tight; $48, sacked, Milwaukee, February only.

Buffalo: Demand good; trend higher; supply fair; $55, bulk, Boston.

Memphis: Demand nil; trend steady; supply ample; white $57; yellow $57.

LINSEED OIL MEAL

Chicago: Demand good; supply scarce; solvent $72; expeller $77, basis Minneapolis.

Denver: Demand good; trend strong; supply tight; $85.50, nominal, Denver.

Portland: Demand good; $77.

Omaha: Demand good; supply tight; 34% solvent $73.50 bulk; 32% old process $75, Omaha basis.

Minneapolis: Very good demand for exceptionally thin supplies; price up $9; December solvent $72, bulk; expeller $72.50, bulk.

Boston: Demand and supply limited; $81, nominal.

San Francisco: Demand fair; supply ample; $73.

Los Angeles: Demand fair; trend firm; supply ample; local production, 29% protein, nominal $65 bulk.

Philadelphia: Demand and supply fair; 34% $85.

Wichita: Demand slow; supply ample; 34% $74.50.

New Orleans: Demand good; $73.50@74.

Louisville: Demand fair; trend strong; old process $85.90, up $3; new process $82.90, up $3.

Ft. Worth: Demand fair; offerings light; carlots 34% solvent; December $91.50, nominal; January $89; truck $87; pellets $2.50 premium.

Cincinnati: Demand poor; trend higher; supply limited; new process $83; old process $85.

Kansas City: Trend strong; supply very tight, with good demand having taken care of limited production; solvent meal $69, bulk, Minneapolis; old process meal $71, nominally, with none available.

Milwaukee: Demand good; supply tight; old process $82.50, new process $80.50, both sacked, Minneapolis.

Seattle: Demand fair; trend firm; supply limited; $80, carloads, 34% protein.

MALT SPROUTS

Chicago: Demand fair; supply adequate; No. 1 $43@43.50.

New Orleans: Demand fair; trend steady; supply limited; $45.50@47.

Boston: Demand and supply light; $42.50.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $48.

Milwaukee: Demand good; supply fair; odd weights $42.50; even weights $44.50.

MEAT AND BONE MEAL

Denver: Demand brisk; trend strong; supply limited; 50% $95 bagged, $92 bulk.

Chicago: Demand fair; supply adequate; 50% protein $90@100.

Louisville: Demand fair; trend steady; supply normal; $95@100.

St. Paul: Supply and demand about equal; fair supplies; 50% meat and bone meal $109@111.

Omaha: Demand good; supply ample; $100.

Los Angeles: Demand fair; trend steady; supply ample; 50% protein $1.80 a unit.

Boston: Demand active; supply adequate; $1.50 a protein unit; converted 50% $87.50.

San Francisco: Demand good; supply fair; $1.75 a unit of protein.

Wichita: Demand strong; supply insufficient; 50% $105, f.o.b. plant; 55%, no quotations, no offerings.

Ogden: Supply average; $95, in 100-lb. bags.

New York: Demand good; trend stronger; supply tight; 50% $85, 55% $92.50, bulk; 50% $88, 55% $95.50, sacked.

Portland: Demand improved; trend higher; supply ample; $1.55 a unit of protein.

New Orleans: Demand good; trend steady; supply adequate; $92.50@95.

Ft. Worth: Demand good; production light; meat and bone, 50% $93@95, f.o.b. or delivered Ft. Worth.

Cincinnati: Demand excellent; supply fair; trend strong; 50% meat and bone scraps $100, sacked, Cincinnati.

Kansas City: Demand good; trend steady; supply tight; 50% meat and bone scrap $103.

St. Louis: Demand good; trend higher; supply short; $106.

Seattle: Demand and supply good; trend steady; $80, ex-warehouse, 50% protein.

Buffalo: Demand good; trend stronger; supply ample; 50% meat scraps $95 bulk, $100 sacked.

MILLFEED

Minneapolis: Sold out through December in most cases; demand called "terrific;" bran up $5 for the week and $19.50 over the same week a year earlier; bran $49@50; middlings $50@51.50; red dog $52.50.

Kansas City: Demand excellent; trend strong; supply very tight for all types with much of the material moving into the central states; bran $44@44.75, shorts $44@44.75, sacked; bran $40@40.75, shorts $45@45.75, middlings $45@45.75, bulk.

Wichita: Demand good; supply adequate; basis Kansas City: bran $43@43.50, shorts $43.25@43.75; bran and shorts advanced $3.25, compared with the preceding week.

Omaha: Demand good; supply tight; sacked bran $46; sacked gray shorts $48; bulk standard midds. $47.50, all Omaha basis.

Ft. Worth: Demand excellent; light offerings especially immediate; carlots, bulk, exempt bran $52.50@53; gray shorts $52.50@53; bulk middlings $53.50, delivered Texas common points; $4 higher on bran and shorts and $6 higher on middlings compared with previous week.

Chicago: Millfeeds continued their phenomenal rise during the week ending Dec. 10, moving up $4@6 ton. An unexpected demand from feed manufacturers is eating up all available supplies. Flour mills have their output sold up as far as the Christmas week. Quotations: bran $52@53, standard midds. $54@55, flour midds. $54@55, red dog $56.50@57.

St. Louis: Demand good; trend higher; supply short; bran $49.50@50, shorts $49.50@50, sacked; bran $45.50@46, shorts $50.50@51, middlings $49.50@50, bulk.

Cincinnati: Demand fair; trend higher; supply adequate; bran and middlings $56.50.

Philadelphia: Demand spotty, trend unsettled; supply light; bran $61, standard midds. $63, red dog $65.

Boston: Demand good; supply spotty; bran $58, middlings $60.

Buffalo: Canadian offerings depressed prices. Demand, however, was good enough to reverse the initial trend but not great enough to overcome it entirely and advance the market with western strength. Both sacked bran and middlings were off $2.50 and both regained $1.50 of the loss to end the week $1 lower. Red dog held unchanged. Quotations Dec. 10: bran $54.50@55, standard midds. $55@55.50, red dog $56@58.

New York: Demand and supply good; trend higher; bran $62@62.50, standard midds. $63@64.

New Orleans: Demand fair; supply adequate; bran $51.25@52; shorts $51.75@52.50.

Memphis: Demand good; trend higher; supply scarce; wheat bran $52, gray shorts $53, standard midds. $53.

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Louisville: Bran $54.35, up $3.65; mixed feed $55, up $3.90; shorts $56.10, up $4; middlings $57.80, up $2.50.

Denver: Demand good; trend strong; supply limited; shorts $46.50, bran $43.50, mill run $46.75, Denver.

Seattle: Demand and supply fair; trend firm; $40, common transit points, carlots.

Portland: Demand slow; trend firm; mill run $37.50@38.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $40, middlings $45; to Denver: red bran and mill run $47, middlings $52; to California: red bran and mill run $47.50, middlings $52.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: standard mill run $48.50@50 bulk, slow demand, firm trend, light offerings; red bran $57@60 bulk, slow demand, firm trend, light offerings.

San Francisco: Demand good; supply fair; millfeed $49.50; red bran $60.50.

MINERAL FEED

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Ogden: Supply normal; $113 ton in 50-lb. blocks; $103, granular, 50-lb. bags.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Denver: Demand good; trend steady; supply ample; $155, Denver.

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3½% granules $38, phosphorus 2% $78 (all in 50-lb. paper bags).

Wichita: Demand good; supply insufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

San Francisco: Demand and supply good; $23, f.o.b. cars, Richmond, Cal.

Los Angeles: Demand good; trend steady; supply adequate; $23 bulk, f.o.b. tank cars; $23.25 bulk, f.o.b. tank trucks.

Boston: Demand good; supply plentiful; 17¼¢ gal. in tank cars.

Cincinnati: Demand fair; trend steady; supply adequate; 12¼¢ gal., New Orleans.

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Ft. Worth: Demand good; supply sufficient; blackstrap 13¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $29.03 ton, seller's market price on date of shipment.

Louisville: Demand fair; trend easy; supply normal; 12½¢ gal., off ½¢ gal., tank car lots, f.o.b. Gulf ports.

New York: Demand fair; trend downward; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Denver: Demand fair; trend steady; supply ample; 12½¢ gal., New Orleans; $21.37, New Orleans.

Minneapolis: Demand picking up; Louisiana crush to be completed this month; 12½¢ gal., New Orleans; January 12⅝¢.

Atlanta: Demand fair; supply limited; trend steady; citrus $20, bulk, f.o.b. Florida producing points, immediate.

Kansas City: Demand fair, with some slowing since prices advanced; trend steady; supply adequate; 12⅛@12½¢ gal., tank car, New Orleans.

Milwaukee: Demand fair; supply good; blackstrap 12½¢ gal., f.o.b. New Orleans.

St. Louis: Demand fair; trend lower; supply ample; 12½¢ gal., New Orleans.

Seattle: Demand fair; trend easy; supply good; $23, f.o.b. Seattle, tank car lots or truck lots.

Buffalo: Demand and supply good; trend lower; 16½¢ gal., f.o.b. Albany.

Memphis: Demand good; trend steady; supply adequate; blackstrap 13¢ gal., tank car, f.o.b. New Orleans, and $28.50, delivered Memphis, truck.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1 kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Chicago: Demand fair; supply scarce; reground oat feed $21@21.50; fine ground feeding oatmeal $70; feeding rolled oats $79@80.

Los Angeles: Demand fair; trend firmer; supply adequate; pulverized oats, local production $61.

Portland: Demand fair; supply ample; trend unchanged; rolled $62, ground $59, cleaned $61.

Louisville: Reground $26.80, up $3.20; rolled $84.30, unchanged; feeding $78.30, unchanged; pulverized $51.50, up $1; crimped $66.80, unchanged.

Minneapolis: Very good demand; ample supplies; feeding rolled oats $79; pulverized $45.50; oat feed $20; crimped $56; feeding oatmeal $69.50.

Philadelphia: Demand slow; supply fair; pulverized white $53; Canadian oat feed $35.50, domestic $29.50.

Ft. Worth: Demand slow; offerings light for nearby delivery; oat millfeed $46.50; reground oat millfeed 3% protein, sacked $29.50, nominal.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $20.60; pulverized white oats $49; rolled oats $83@86.

Boston: Demand and supply steady; white pulverized $55; reground oat feed $20.

Memphis: Demand fair; trend steady; supply scarce; 3½% protein, reground oat feed $27.25.

Seattle: Demand and supply fair; trend strong; $53, bulk, truck lots.

OYSTER SHELL

Portland: Demand slow; trend unchanged; supply ample; western $34; eastern $38.50; granite grits $26; shell flour $24.

Los Angeles: Demand fair; trend unchanged; supply ample; $14.80.

New Orleans: Demand good; supply plentiful; trend steady; $19@19.50.

Louisville: Demand fair; trend steady; supply ample; in 80-lb. paper $22.85; in 50-lb. paper $23.10; in 25-lb. paper $25.35.

Cincinnati: Demand fair; trend steady; supply adequate; $23.45.

San Francisco: Demand fair; supply ample; local $15; eastern $26.

Boston: Demand and supply steady; $25 in paper.

Seattle: Demand and trend steady; supply good; eastern $35, carlots.

PEANUT OIL MEAL

Atlanta: Demand fair; trend steady; supply limited; 45% $66, sacked, immediate.

Milwaukee: Demand and supply fair; 26% $42.

PEAT MOSS

San Francisco: Demand fair; supply ample; $3.75 bale.

Los Angeles: Demand fair; trend unchanged; supply ample; Canadian, 6.1 cu. ft. bales $3.75.

Boston: Demand and supply steady; $3.15 bale in carlots.

Chicago: Demand fair; supply short; $3.60 @3.70, standard 7⅛ cu. ft. bale.

Portland: Demand slow; supply ample; trend unchanged; $3.25.

Philadelphia: Demand slow; trend unsettled; supply very light; $2.90, f.o.b. pier.

Seattle: Demand poor; trend easy; supply good; $2.70, bale, truck lots.

POTASSIUM IODIDE, U.S.P.

Chittenango, N.Y.: Demand good; supply adequate; 90% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.35; 100-lb. cartons $1.36; freight prepaid to destination.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drum $1.38; 25-lb. drum $1.41.

POULTRY BY-PRODUCTS

Ft. Worth: Demand slow; supply short; 55% protein $95, f.o.b. north Texas plants.

Atlanta: Demand fair; trend steady; supply ample; $100.50, sacked, immediate, f.o.b. Alabama and Georgia producing points.

Los Angeles: Demand slow; trend unchanged; supply ample; $1.60 a unit of protein.

Boston: Demand good; supply tight; $100, f.o.b. shipping points.

RICE BY-PRODUCTS

San Francisco: Demand fair; supply ample; bran $40; polished $49.

Los Angeles: Demand fair; trend steady; supply scarce; bran, California production, high fat content $50.

Ft. Worth: Demand good for export, slow for domestic at present price; offerings light; carlots, rice bran $37@38, nominal, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

SCREENINGS

Minneapolis: Supplies virtually unobtainable; fairly good interest raised prices $2; lights $8@17, mediums $18@27, heavies $28@35; Canadian bulk $24; Canadian ground $34; flaxseed screenings $35; oil type flax screenings $43, basis 15%.

Ft. Worth: Demand almost nil; supply sufficient; ground $28.

Cincinnati: Demand fair; trend steady; supply adequate; malt house $19.50; barley $22.50.

Chicago: Demand fair; supply adequate; ground grain screenings $30.50; Canadian, bulk $23.50.

Buffalo: Demand and supply fair; trend steady to higher; ground, sacked $36, New York; unground, bulk $29.25, New York.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots, in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

SORGHUMS

Los Angeles: Demand better; trend very firm; supply tighter; milo $2.42½ cwt., bulk.

Ft. Worth: Demand good; supply sufficient; carlots, bulk, No. 2 yellow milo $2.22@2.23, delivered Texas common points.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SOYBEAN OIL MEAL

New Orleans: Demand fair; trend steady; supply adequate; $66@67.

St. Louis: Demand fair; trend steady; supply limited; 44% $71.

Milwaukee: Demand good; supply fair; $58, bulk, Decatur.

Seattle: Demand and trend steady; supply ample; $92, carlots.

Memphis: Demand good; trend steady; supply scarce; prime 44% solvent $67, f.o.b. Memphis.

Kansas City: Demand good, though orders are not large; trend strong; supply very tight; meal for Kansas City and western shipment $59@59.50, bulk, Decatur; unrestricted $61.

Atlanta: Demand good; trend steady; supply ample; 44% $68.50, sacked, immediate.

Omaha: Demand good; supply tight; 44% $70.80, bulk, delivered Omaha.

San Francisco: Demand good; supply tight; $91.50.

Los Angeles: Demand fair; trend very firm; supply adequate; $88.50@89.50, bulk.

Minneapolis: Demand off slightly; buyers saw tightness coming and are fairly well covered; limited supplies available for nearby at $58@59, bulk, Decatur, up $7, for 44% to be shipped into Minnesota. January price set at $54.50, bulk, Decatur.

Chicago: A continuing strong demand from day to day and for the long term keeps soybean oil meal prices moving upward. Values advanced $1.50@3.50 ton during the week ending Dec. 10. December production is just about sold, observers say, and there is some trade for January output at prices only $2@4 under current quotations, which are: 44% protein soybean oil meal, bulk, unrestricted, basis Decatur $60@61; eastern restricted $58@58.50; 50% bulk, unrestricted, basis Decatur $67; eastern restricted $65.

Boston: Demand good; supply steady; 44% $57.50; 50% $64, both bulk, f.o.b. Decatur.

Denver: Demand good; trend strong; supply fair; $79.50, sacked, Denver, nominal.

Louisville: $68.70.

Philadelphia: Demand and supply fair; 44% $58, bulk, Decatur.

Ft. Worth: Demand good; supply limited; carlots, 44% $75@81, December-January-February, depending on origin; truck meal 44% $71@72.50, prompt.

Wichita: Demand good; supply adequate; 44% $72, 50% $80, f.o.b. Wichita.

Ogden: $81@86.

Portland: Demand good; $49, f.o.b. Decatur.

Cincinnati: Demand fair; trend higher; supply adequate; $60, bulk, Decatur.

TANKAGE

Chicago: Demand fair; supply limited; 60% protein $105.

Wichita: Demand strong; supply insufficient; 60% $110, f.o.b. plant.

New Orleans: Demand fair; supply ample; trend steady; $112@113.

Omaha: Demand good; supply ample; $105.

Kansas City: Demand good; trend steady; supply fairly tight with kills still light; 60% digester $106.

St. Louis: Demand good; trend higher; supply short; $110.

St. Paul: Adequate supplies; fair demand; prices up to $107@109 with rising ingredients market.

Louisville: Demand fair to good; trend steady; supply fair; $100@105.

Ft. Worth: Demand fair; supply scarce; 60% digester $100@102, f.o.b. Ft. Worth.

Cincinnati: Demand good; supply fair; trend strong; 60% digester $105, sacked, Cincinnati.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply limited; 7¾¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand and supply fair; trend steady; $103@106.

Buffalo: Demand and supply fair; trend steady to higher; commercial grade $78, f.o.b. Buffalo.

EGG PLAN

(Continued from page 8)

He reviewed the Staley Milling Co.'s swine program, under which packers agree to pay a premium for top quality hogs grown under methods prescribed by the feed company.

"This is not a wildfire program, but in some areas farmers are very interested in it," Mr. Johnson said. It works best, he said, where there is a strong mixer-dealer who can fill feeders in the finishing and growing areas for the farmer. Where this sort of help is available, one man can care for 100 sows, he said.

Mr. Johnson suggested to the farm managers that in considering contract programs the first thing to look for is "a market that is hungry."

"If I were you, I'd find out what type of feeding your clients would like to get into, explore the market demand, develop a plan and make it understandable to a packer."

He also suggested that they check with feed manufacturers to see if there is a grain bank facility in the area that could serve the operation. When all the facts are gathered, they can be taken to financing people in order to interest them in financing buildings and equipment.

"The more of you that work out programs of this type, the better it will be for the processor, and you will get yourself into a better bargaining position," he said. "Don't wait until a client decides to get out of business because of unsatisfactory market prospects."

Feed Man's Role

Concerning the feed manufacturer's role in arranging contract programs, Mr. Johnson said, "If you were a manufacturer and saw poultry and hog production falling off, and if you also saw that contracts are doing a good job in some types of production, you would consider working with contracts. Such arrangements can do a better job of feeding and satisfy a market. There is more satisfaction in this sort of business than selling a miscellaneous bag of feed.

"Feed companies are traditionally merchandisers and not contractors, but the drift is commanding so we must participate while learning. I don't think present programs are the last word, and some modifications are inevitable. This is something we must do, and we think you (farm managers) are in a position to participate."

Following Mr. Johnson's talk, members of the audience totaling about 200 were asked if they now are participating in integration projects. On a show of hands, 11 were counted.

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CONFERENCE SPEAKERS—Pictured here are scientists who spoke during poultry and swine sessions at the recent Midwest Veterinary-Nutrition Conference in Kansas City. Left to right in the first photo are poultry session speakers: Dr. Reed R. Rumsey, Dr. Salsbury's Laboratories, Charles City, Iowa; Dr. Rollin H. Thayer, Oklahoma State University; Dr. C. L. Nelson, Jewell, Iowa, veterinarian; Maurice Wells, Waterloo (Iowa) Mills, who presided; Dr. E. L. Stephenson, University of Arkansas, and Dr. H. R. Bird, University of Wisconsin. In the second picture are swine experts who spoke: Dr. D. E. Becker, University of Illinois; Dr. H. C. H. Kernkamp, University of Minnesota; Dr. Merle Brinegar, Allied Mills, Inc., Libertyville, Ill.; Dr. Chase Wilson, Consumers Cooperative Assn., Kansas City, who presided; Dr. J. L. Krider, McMillen Feed Mills, Ft. Wayne, Ind.; Dr. A. C. Todd, University of Wisconsin, and Dr. Robert Nesheim, The Quaker Oats Co., Chicago.

CONFERENCE

(Continued from page 1)

cations have been picked for the state of Missouri, and similar action is expected in Kansas and Iowa. The basis of the meetings will be a capsule report of the Kansas City program and a discussion of the information presented.

In addition to the discussions of feed man-veterinarian relationships, the program included several talks on animal and poultry nutrition and health of importance to both feed men and vets. Experts from colleges, industry and the veterinary profession were on hand to speak. Summaries of and excerpts from several of the talks follow. (Reviews of talks on poultry and small animal nutrition and health will appear later.)

VETERINARIAN-FEED MAN RELATIONSHIPS: Several speakers, including the president of the American Veterinary Medical Assn., discussed this subject, offering suggestions for improvements.

The Relation of the Veterinarian to Industry: Dr. R. E. Rebrassier of Ohio State University, president of the AVMA, pointed out in a banquet address some of the progress, and problems, in veterinary-feed industry relationships. (Also see editorial on page 2 for some of his comments.)

"Meetings between my profession and your industry," he said, "have gone far in promoting mutual understanding and respect at the national level and in states where such meetings have become traditional. But conflicts, when they occur, have usually taken place at the community level . . .

"More joint meetings at community, state, regional levels would further mutual understanding and increase knowledge. Joint committees need to be formed at community and state levels. . . . Coordination of research can help both groups . . .

"A start has been made by individuals, several states have joint committees, veterinary-feed industry conferences on nutrition have been held in some states, and now this meeting is in a vital farm region. These activities should, and must, be encouraged. Education of the veterinarian and feed man is essential. A free exchange of information through smooth channels of communication will remove misunderstanding before conflict develops . . .

"Let's show our neighbors back home that cooperation can exist wherever the veterinary profession and the feed industry are sincerely interested in serving the livestock industry."

Working with Veterinarians in the Field: Dr. W. E. Poley of Zip Feed Mills, Sioux Falls, S.D., described a program in which his company and dealers work with veterinarians. He said: "We set up a policy that whenever a feeder was experiencing poor feeding results or sick animals, we would ask the dealer to suggest to the feeder that he call in his local vet. We requested that either our dealer or salesman be present when the vet made his call. Our company then would pay the cost of the call and diagnosis. We did not offer to pay for medication, vaccination or other treatment.

"Our dealers would accept the diagnosis of the veterinarian and cooperate with him in every way possible. We, of course, wanted it understood that the veterinarian would be in no way obligated to us in his diagnosis."

Dr. Poley outlined several experiences to show that the program has worked.

"Because of our demonstrated interest in working with veterinarians," he continued, "they are more willing to come to us for information and help on a feed or feeding program. . . . We think that our program with veterinarians is doing much to establish a common understanding."

Working with Feed People: Dr. John Aiken, a practicing veterinarian at South Sioux City, Neb., and chairman of the Nebraska Feed-Veterinary Committee, told how steps have been taken to improve relations between the two groups.

He said the vet's biggest complaint about feed men is not that they sometimes compete with him in so-called health and sanitation products but it is the diagnosis and treatment of disease in livestock without veterinary consultation.

"A great deal can be gained by cooperation," said Dr. Aiken. "If feed salesmen used the vet in consultation on animal disease problems, the salesman would be relieved of considerable pressure and would gain a friend . . .

"May I suggest that a talk over a cup of coffee with the local practitioner be made a required part of a feed salesman's routine? The salesmen will in most cases have to make the first move. There are usually several feed men in one locality, and it is difficult for the vet to know which are interested in working with him.

"We are considering a code of conduct to govern vet-feed man relationships and other ideas have been discussed."

Teaming Up: Dr. James H. Magilton, veterinarian at David City, Neb., explained how the vet can help feed men by advising better feeding and referring clients to feed dealers with instructions on feed to be used. However, he said, veterinarians object to some salesmen who make extravagant claims for feed, to dealers who persuade feeders to disregard vets' suggestions, and to competition from dealers who sell livestock remedies.

Dr. Magilton said that in his community he works with a dealer who does not stock livestock remedies and who has two mobile mills and provides mixes suggested by the veterinarian. The results, he said, have been beneficial to both.

SWINE NUTRITION AND HEALTH: Six talks dealt with various aspects of swine nutrition and health and current trends in swine production.

Control of Internal Parasites in Swine: Dr. A. C. Todd, department of veterinary science, University of Wisconsin, said surveys over a long period do not indicate a decline in helminth population, although standards for management, sanitation and feeding steadily improved during the same period. It appears that increased concentration of swine and intensive market schedules will prevent complete dependence upon sanitation and management for control of internal parasites.

"The first successful drug for mass treatment of herds of swine infected by Ascaris," said Dr. Todd, "was sodium fluoride. . . . The safety margin of swine anthelmintics was increased greatly by development of cadmium products. . . . The piperazines can be used to attack internal parasites on a herd basis. Because of ease of administration, they can be incorporated readily into systematic periodic treatment. They have their greatest usefulness in removing the bulk of Ascaris and nodular worm infection from feeder pigs going into the feedlot. . . .

"From the standpoint of control of worm parasites rather than treatment of specific infection, hygromycin incorporates more desirable features of an anthelmintic than any other yet produced. It can be used in a continuous system in sub-therapeutic amounts. . . . Hygromycin has increased the spectrum of anthelmintic activity of drugs useful against parasites from the Ascaris and a portion of the nodular worm population to swine Ascaris, the full nodular worm population and the whipworm. Evidence has been obtained that it also exerts an exact action against the red stomach worm and the swine lungworm."

Nutritional Diseases and Minerals for Swine: Dr. M. J. Brinegar, Allied Mills, Inc., Chicago, discussed a few of the highlights of recent research in this field. He mentioned the work showing that a parakeratosis condition was due to a zinc deficiency and that excess calcium aggravated the condition and increased the need for zinc. He also noted that even though sufficient zinc may counteract depression and parakeratosis-producing effect of excess calcium, it does not remedy depressed feed conversion brought about by excess calcium.

The practices of preventing anemia in suckling pigs by oral treatments with iron and copper are being replaced with injections of iron complexes. A second injection may often be needed.

One of the greatest misuses of minerals, said Dr. Brinegar, is haphazard addition of extra mineral mixtures or supplements to an already balanced ration. Imbalances can be created, he said, citing certain research findings. That the appetite of pigs for minerals is not a good barometer of their needs is now well established, he continued.

Balancing Swine Rations: Dr. D. E. Becker, professor of animal science, University of Illinois, said that probably no class of nutrients is more important and critical in swine rations than proteins or their components, amino acids. He presented data on and discussed such things as recommended protein levels, time element in protein feeding (supplements should be fed daily), and amino acid requirements.

Calculations and minimum percentages of various amino acids required in a 36% protein supplement are presented in Table 1. Corn consumed as 78% of the diet would fully satisfy the requirement of the pig for arginine and leucine. Amounts of histidine, valine and aromatic amino acids that must be provided by the supplement are relatively unimportant, but the supplement is important in providing others.

Lysine and tryptophan are the pri-

SOUTHEAST

(Continued from page 1)

eggs, the board said it felt that promotional work could best be handled by a national group which would be responsible for both the collection of promotional funds and the expenditure of such funds. They said that regional groups are already equipped to handle legislative matters affecting the egg industry and that Associated Poultry and Egg Industries and the National Poultry Producers Federation provide the machinery for the various regional industry and producer organizations to exchange views on national legislative policy.

Action on the turkey marketing order followed a full explanation of the purposes and provisions of the proposed legislation by M. C. Small, executive secretary of the National Turkey Federation. Mr. Small had been invited to the board meeting by Paul G. Thomas, Sumter, S.C., Southeastern's president, to present the views of NTF on the turkey bill which is expected to be re-introduced in the 86th Congress early next year.

At the end of the long discussion, the board said it could see no reason to change its original decision to oppose the bill as had been recommended by the association's turkey committee, representing all turkey-producing states in the area.

Public Relations Head Named by Pfizer, Ltd.

LONDON — Pfizer, Ltd., has announced the appointment of Stephen Crozier to the position of director of public relations for the firm. Pfizer, Ltd., has its headquarters in Folkestone, Kent. Mr. Crozier will also act as adviser on public relations to the northern European and African area of Pfizer International subsidiaries.

Mr. Crozier was formerly head of public relations for the Brush Group, power engineers, and previously was on the staff of several newspapers.

COMMENDATION—Dr. Morris Erdheim (left) of Dawe's Laboratories, Inc., Chicago, a veterinarian, is receiving a certificate commending him for his work in helping to bring about better relationships between veterinarians and the feed industry. Making the presentation is Lloyd Larson, executive vice president of the Midwest Feed Manufacturers Assn. Dr. Erdheim was presented with the certificate during the Midwest Veterinary-Nutrition Conference in Kansas City.

mary amino acids required in the supplement. If the requirement for these two is satisfied with the supplement, normally sufficient isoleucine and threonine are provided. If the supplementary protein is largely supplied as soybean meal, methionine level may merit special attention.

If all five of these amino acids must be considered in determining supplementary value of a feedstuff in formulation of a supplement, the technique may be somewhat complicated, but the usual components of supplements permit use of a simple system. Soybean meal is commonly used as at least 50% of the supplement. In addition, supplements frequently contain 10% alfalfa meal and 10% of mineral, vitamin and antibiotic concentrates. The remaining 30% may be supplied as a variety of feedstuffs. In view of the amino acid contributions of the soy, alfalfa meal and mineral, vitamin and antibiotic concentrates, by far the greatest need is for lysine. Therefore, an evaluation of feedstuffs to constitute the remainder of the supplement may be largely based on their lysine content.

New Concepts of Swine Production: Some of the newer concepts are being used on an increasing scale, it was pointed out by Dr. Robert Nesheim, The Quaker Oats Co., Chicago. They are the result of a more businesslike approach to hog production. Some of the new trends and developments are:

1. Confinement rearing as opposed to pasture feeding is increasing. Factors contributing to this include: (a) Rations can and are being formulated which are not improved by pasture. (b) Increasing land values and reduced feed saving result in a low return per acre for pasture used for hogs. (c) More multiple farrowing is changing requirements for production facilities. (d) Advances in sanitation and disease and parasite control make centralized facilities practical. (e) The "convenience" factor in centralized facilities is appealing.

2. Multiple farrowing is becoming common. This practice can (a) make more efficient use of facilities, (b) make more efficient use of labor in producing pigs, (c) mean multiple marketing, providing more uniform income, (d) aid packers by spreading supply more uniformly, thereby helping bring more stable prices for producers.

3. Interest in use of feeder pigs is increasing. A major problem is a consistent supply of uniform, healthy pigs at fair prices. There are other problems, too, to be overcome, but feeder pig production will increase. It will tend to occur in areas of low land value and surplus labor as in fringe areas of the Corn Belt.

4. Early weaning is getting established on a sounder basis.

5. Mixed rations, including pelleting, are showing growth and potential. There is increased interest in pelleted rations for growing-finishing as well as for starting and growing pigs. The practical economy of complete pelleted rations depends on local price comparisons. Many producers find that feed saving plus better gain and reduced labor make use of complete rations practical and economical.

TABLE 1. Calculation of Minimum Amino Acid Levels Required in a 36% Protein Supplement

Amino Acid	Req. of Weanling Pig Fed 15% prot. (% of Diet)	15% Protein Diet 78 lb. Corn	22 lb. Suppl.	Minimum Level Req. in Suppl.
Arginine	0.25	0.31	...	...
Histidine	0.21	0.18	0.03	0.14
Isoleucine	0.51	0.30	0.21	0.95
Leucine	0.66	0.78	...	...
Lysine	0.79	0.26	0.53	2.41
Methionine	0.29	0.15	0.14	0.64
Cystine	0.19	0.09	0.10	0.45
Threonine	0.44	0.27	0.17	0.77
Tryptophan	0.11	0.04	0.07	0.32
Valine	0.45	0.37	0.08	0.36
Phenylalanine	0.37	0.34	0.03	0.14
Tyrosine	0.16	0.33	...	...

Nutritional Deficiency Diseases in Swine: Dr. H. C. H. Kernkamp, College of Veterinary Medicine, University of Minnesota, explained that a nutritional deficiency disease results when an animal fails to obtain and/or assimilate essential nutrients. The failure may be one of intake or one of uptake of a particular nutrient or nutrients.

Deficiencies due to failure of intake represent situations in which, for the most part, an adequate supply of the required nutrient is not present in the feedstuffs or the ration as it is compounded. It is not uncommon to find an intake deficiency in pigs growing at an accelerated pace. A ration may be adequate in some nutrient for pigs in the age group for which it is compounded and under general conditions, but inadequate for faster growing pigs of the same age and living under the same general conditions. The signs of deficiency in this case are best seen when the animal is standing at the feeder or waterer. The body weight is shifted from one leg to another by slightly raising and holding the foot off the ground for a second or two, and then doing the same thing with the opposite leg. When walking, a slightly stiff and stilty gait may be noticed. It appears that the skeleton is not sufficiently mineralized to carry the weight.

A more complex situation exists when the deficiency results from failure of uptake of the nutrient—where nutrients in the ration are adequate but where they are not absorbed and assimilated efficiently.

Dr. Kernkamp went on to discuss deficiencies of such things as iron, iodine, vitamin D and B vitamins.

Growth Stimulants for Swine: Dr. J. L. Krider, McMillen Feed Mills, Ft. Wayne, Ind., pointed out that costs of hog production have been significantly reduced by the use of growth stimulants, such as antibiotics, chemobiotics and arsenicals. Using efficient rations, good producers are finishing hogs on 3 to 3.2 lb. of feed per pound of gain from weaning to market.

Dr. Krider went on to review the effect of inclusion of proper levels of effective antibiotics in swine rations. He presented a summary found in the book "Swine Production," of which he is one of the authors. Dr. Krider also discussed the effects of arsenicals. He cautioned veterinarians to determine whether a feed contains an arsenical before prescribing medication which would include an arsenical.

Dr. Krider noted that the growth stimulants he discussed are used primarily for economical hog production on a day-in and day-out basis and are used for purposes not in conflict with objectives of veterinarians.

He also mentioned some basic disease problems not generally responsive to the growth stimulants. In this connection, he noted that cases of gut edema are increasing and that to date no successful control has been developed. It occurs more frequently in young pigs brought from pasture and first placed on full feed. It can and does occur in pigs being fed in confinement.

RUMINANTS: Bloat control, feed additives and stress problems were discussed at a session on ruminants.

Methods of Controlling Bloat in Cattle and Sheep Grazing Legume Pastures: Many methods for controlling or preventing bloat in cattle and sheep grazing legume pastures have been proposed, said Dr. B. F. Barrentine of Mississippi State College, but very few of these methods have any value or at least any practical value in prevention of bloat.

Feeding or drenching the animal with oils or spraying the legume forage with oils is effective, but this method is not likely to be used extensively because of management and labor required, Dr. Barrentine said.

He outlined Mississippi and other work on oral administration of antibiotics. It was found that penicillin would protect steers from bloat for one to three day periods. Terramycin has been found to give some protection against bloat, Dr. Barrentine said, but it is still considered that penicillin is more effective. A number of antibiotics have been tried, and the only one found equal to penicillin is erythromycin; however, no commercial application has been made because of the higher cost of erythromycin. Properly prepared penicillin salt mixtures have been found to give good protection.

After continuous administration of penicillin for about two weeks, a kind of resistance does develop in some animals and they start bloating again. However, Mississippi workers have obtained good protection after 28 days of feeding a penicillin-salt mixture and after 20 days of oral administration of penicillin by capsule.

Additives in Ruminant Feeds: Dr. C. B. Knodt, Cargill-Nutrena Research Farm, Elk River, Minn., presented an extensive review of information on use of additives in ruminant feeds. Excerpts from his remarks on the additives include:

"The value of antibiotics in ruminant feeds appears to be associated with degrees of stress and related level of disease conditions. . . . Stilbestrol has been successfully fed to all weights of cattle, including creep-fed calves. A number of research reports have shown benefits from feeding stilbestrol to lambs. . . . Information now available raises questions with respect to effectiveness of rumen preparations in cattle feeding. . . . A recent advance in livestock feeding which holds promise is that of hydroxyzine, a tranquilizer. . . . A number of tests have shown benefit from Tapazole, which has not been cleared by FDA for feeding. . . . Conceivably enzymes might be of benefit in young dairy calves, but to date feeding various preparations has not improved gains or feed efficiency. . . . On the basis of research information available, feeding of yeast or live yeast cultures does not appear to consistently improve gains in beef cattle or milk production in dairy cattle. . . . Although Trolene cannot be mixed and fed in a feed for grub control, a number of projects indicate its efficacy when so handled. Clearance for feeding purposes is being asked. . . . Phenothiazine has been shown to be of benefit as an anthelmintic. . . . Sodium propionate has been of considerable help in preventing ketosis, but it is quite unpalatable to many cows. Recent research on sodium calcium lactate has shown it may have an important role. . . . Research reports have indicated variations in response to arsenicals in calves. Feeding 3-nitro to fattening beef cattle was not beneficial in two tests. . . . Available research reports indicate a wide variation in response to Dynafac. A number of private feedlots have conducted rather well-controlled research and now use this product as part of their feeding programs.

Combatting Ruminant Stress Problems in the Feedlot: Dr. John B. Herrick, veterinarian at Iowa State College, said the following things are needed to avoid stress on cattle coming into the feedlot: "1. Avoid yard-weary cattle. Direct from range or commission yard or barn to feedlot is the best preventive of 'shipping fever' complex. (2) Tranquilization aids in preventing shrink and enables cattle to be placed on full feed sooner. (3) Respiratory infections should be attended to immediately; to date antibiotics in the feed are of little value for the animal so sick it can't eat or drink. In the future, preventives in the form of vaccines may help. (4) Fortified rations for nutrient-deficient cattle are important if the normal ruminal flora can handle such concentrated rations. (5) Keep the animals comfortable. It is incomprehensible why a feeder will borrow several thousand dollars to buy 25 to 30¢ cattle and then put them in a sea of mud and expect them to gain 3 lb. a day on the best of feed."

MARKETS

(Continued from page 2)

held previous gains. Consumers continued to buy and they had no alternative but accept current levels.

Grains didn't do too much during the week. Offerings of corn remained scarce and prices rose 1 to 1½¢. Oats gained ½ to 1¢ and barley and feed wheat held unchanged.

Tallow was off ⅛ to ¼¢ lb. in continued weakness.

Soybean oil meal (44%) rose $1 but 50% soybean meal held practically unchanged. Cottonseed oil meal followed soybeans but linseed oil meal was independently strong, scarce, and up $3. Gluten meal held onto a $2 previous advance.

Meat scraps continued strong and up $2.50. Fish meal offerings continued light but prices held unchanged.

Dairy ingredients held strong among the middle proteins, with brewers' grains up $1 to $2 and distillers' grains up $2. Hominy feed gained $2 and gluten meal retained an earlier $2 rise. Alfalfa meal held steady.

Millfeed prices gave ground under Canadian offerings. Both sacked bran and middlings were off $2.50 under the weight of the additional supplies but demand was strong enough for each to recover $1.50 of the loss and end the week off $1.

Running time of formula feed manufacturers averaged 40 hours last week.

Southeast

Feed business was reported on the slower side in the Southeastern states this week. Fairly mild weather over a large part of the territory is partly blamed for the slower pace. The north Georgia broiler market has shown a slight improvement but prices are still quoted at around 14¢ lb., which, based on present feed costs, does not permit profits from broiler operations.

Feed mill running time is reported to be generally steady, with feed prices up, due to increased ingredient market prices. Indications are that the southeastern shell corn market will advance between 5¢ and 10¢ bu. between now and the end of the calendar year. Reasons given for this are that surplus corn has now been disposed of and movement of corn from farm to shelling plant has dropped off considerably. Most farmers are expected to hold corn now stored until after the first of the year when the possible need of money for taxes, fertilizer and other farm needs are realized.

Dairy feeds continue to improve each week, with most other types of manufactured feeds remaining steady to slightly off in tonnage. Most purchasing agents for feed mixing plants report comfortable inventories and still display an attitude of caution

regarding prices for most feed ingredients. The general expectation is that most major ingredients are almost bound to decline from present levels in the not too distant future. Many cottonseed crushers in the southeastern territory will begin running on soybeans during late December and through the winter months. This condition has been brought about by a serious shortage of cottonseed, with a large increase in soybeans available in the territory for crushing purposes.

Supplies of roughage materials remain on the short side, with demand expected to expand with colder weather.

Central States

The tempo of feed business picked up substantially in the central states during the week ending Dec. 10. Order backlogs of some feed manufacturers range to a full five-day week. All feeds are moving well, but hog and cattle feeds, especially, are brisk.

Partly responsible for the pick-up is the cold wave which has held the Midwest in its grip for the last few days. Animals have been forced from fields into feedlots and require more complete feeds.

Some observers also believe inventories are being built in some cases as a defense against taxes. In many areas, it is said, inventories are listed as an expense when reporting taxes. It is felt the buying pace might ease off about mid-December, reflecting preoccupation with the approaching holiday season. In the meantime, prices are firm to higher.

South Central

Formula feed demand was very good this week, colder weather and snow over parts of the area gave an added push to sales. And, as one mill spokesman put it, "Feeding ratios on everything, except poultry, are so good and the livestock population so great, that mills can't help but move a lot of feed."

Cattle and hog feeds are most in demand but the general line of feeds is also moving remarkably well. Layer feeds are not up to expectations for several mills, but all agree that the trend to custom mixes explains it. Although there is a loss of tonnage from this source, there is a partial offset from larger sales of layer concentrates.

Some of the present buying of cattle and hog feeds may be prompted by desire to throw part of next year's feed expense against this year's operations. It's more usual for cattle feeders to stock up than it is for hog raisers, but some think that the larger hog operators are buying next month's feed now. This could result in an early January slump in hog and cattle feed deliveries.

Running time for most of the mills is six days with two shifts. Order backlogs are light, however the day-to-day orders show no sign of any slackening.

Ohio Valley

For the first time in several years the Ohio Valley has been experiencing a prolonged spell of cold weather, with temperatures ranging to well below zero and making necessary the indoor feeding of all farm animals. Sales of formula feeds have increased considerably despite the plentiful supply of stored farm crops.

If the cold weather continues for sometime, as predicted, farmers will have to increase their feedings of manufactured feeds considerably. There were price boosts of 50@75¢ ton for formula feeds this week. Mills are operating at full time at present, but if the cold continues, will find it necessary to increase operations.

Also, the weather situation has resulted in a considerable increase in deliveries of cattle, hogs and sheep to area stockyards, where they were absorbed readily at prices ranging from strong to 50¢ cwt. higher. As elsewhere, poultry continued in ample supply in this area, with price quotations for fryers ranging from 14¢ to 15¢ lb.

Mountain States

Formula feed manufacturers and dealers report that sales have been excellent in the past week and are increased over the previous week and the same time a year ago.

The feeds that have been getting the most demand have been the range cattle feeds, range sheep feeds, and drylot cattle feeds. The reason for the demand being on the increase over the previous week is due to bad weather in the range country. Most of the feed is being purchased by the dealers for immediate sale rather than for inventory buildup.

Pacific Northwest

Feed ingredient quotations averaged higher during the past week with Portland and Seattle mixers reporting moderately active trading for most items.

Soybean meal led the upward price march by pushing $10 ton higher. Linseed meal listings gained $2 ton during the week while wheat millfeed quotes were up $1.50 a ton in face of light offerings.

Quotations for cottonseed and alfalfa meals advanced mostly $1 ton while milo and oats prices gained 50¢ ton with whole corn unchanged to 25¢ higher. Barley values were unchanged to 50¢ a ton lower.

Pacific Northwest weather conditions were conducive to increased winter feeding operations and most feeders and mixers were forced to maintain their inventories.

Offerings of some important feeds were on the tight side and had a tendency to affect the demand for others.

Most mixers advanced quotations on name brand feeds to pass on recent ingredient price gains.

Feed consumption was boosted somewhat by colder weather with snow east of the Cascades and the extreme northwest portion of Washington state. Western Oregon and southwestern Washington continued to have cool rain showers.

Oregon and Washington mixers reported dependable formula feed sales with poultry feeds moving in good volume.

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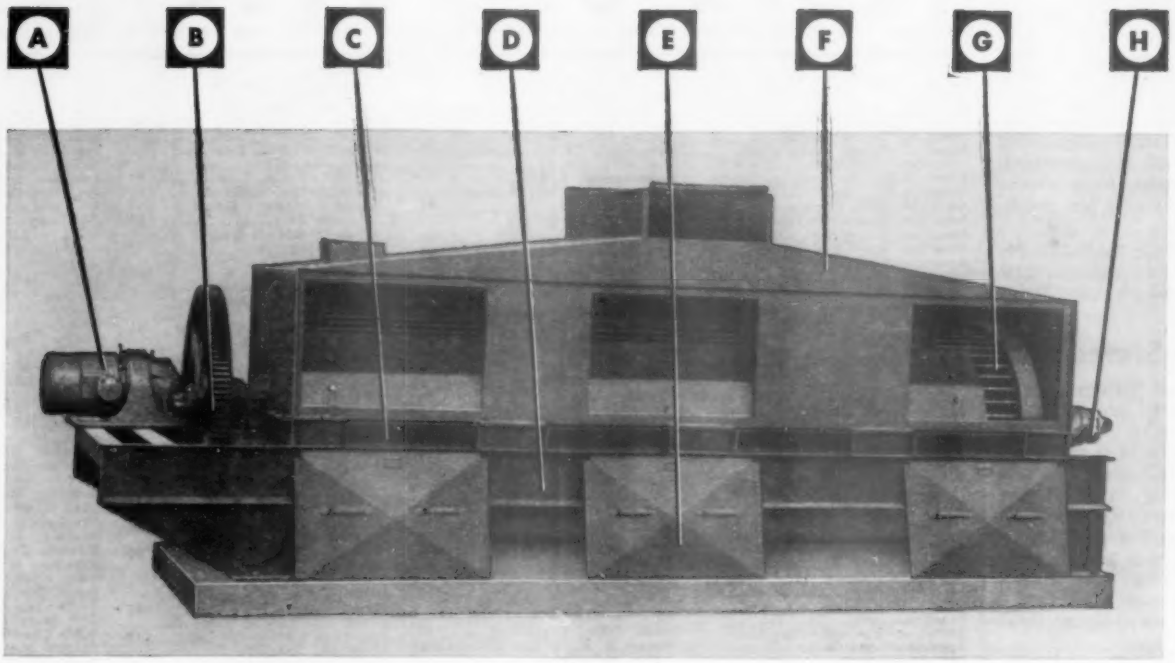

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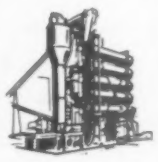
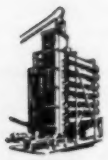
High Capacity Expellers —A high-speed mechanical Expeller screw press process

Exsolex Process—The patented Expeller prepress, solvent extraction method



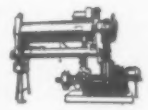


Solvent Plants — Direct solvent extraction

VEGETABLE OIL MILLING EQUIPMENT

Dryers—High capacity removal of moisture from grains and vegetable oil seeds

Grain Expanders—Expand corn, wheat, hominy feed into crisp, palatable products



Flaking and Rolling Mills —Make uniform flakes of any specified thickness

Cooker-Dryers—Properly condition oleagineous materials